This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

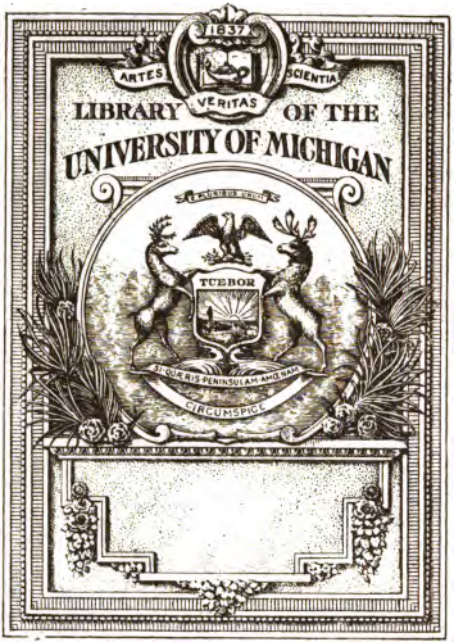
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

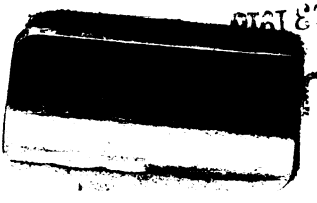
About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

B 49623 7 DUPL



THE GIFT OF
Dr. S. A. Green



614.097
M4
B75a 2

Presented by Dr. S. A. Green, Boston.
1023, 77.

B75a2

FOURTH ANNUAL REPORT

OF THE

BOARD OF HEALTH

OF THE

CITY OF BOSTON,

1876.

BOSTON:
ROCKWELL AND CHURCHILL, CITY PRINTERS,
No. 39 ARCH STREET.

FOURTH ANNUAL REPORT

OF THE

BOARD OF HEALTH

OF THE

CITY OF BOSTON.

1876.

BOSTON:
ROCKWELL AND CHURCHILL, CITY PRINTERS,
No. 39 ARCH STREET.
1876.

CONTENTS.

	PAGE.
Abattoir	10
Appointments	1
Breweries	7
Cemeteries	15
Chemical Work	31
City Physician, Report of	39
Diphtheria	30
Drainage of Soil	7
Financial Statement	33
Fish Peddlers	20
Hides and Horns	18
House Offal	21
Houses Vacated	15
Infant Mortality (Paper of Dr. Richardson)	49
Infant Mortality	31, 49
Inspection of Provisions	11
Manure	19
Medical Commission	31
Mortality Returns	22
Night Soil	18
Police Surgeons	30
Port Physician, Report of	43
Prosecutions	22
Quarantine	4
Registrar of Deaths and Burials	1
Rendering Establishment	10
Sewerage	4
Slaughtering Establishment	8
Small-pox	2
Stable Manure	19
Superintendent of Health, Report of	81
Wet Lands	14
Yellow Fever	4

331431

BOARD OF HEALTH.

ALONZO W. BOARDMAN, *Chairman.*
SAMUEL H. DURGIN, M. D.
HENRY G. CROWELL.

CHARLES E. DAVIS, JR., *Clerk.*

GEORGE W. FORRISTALL, *Supt. of Health.*
SAMUEL A. GREEN, M. D., *City Physician.*
ALONZO S. WALLACE, M. D., *Port Physician.*

FRANK W. DRAPER, M. D., *Medical Inspector.*
WILLIAM L. RICHARDSON, M. D., *Medical Inspector.*

ERRATA.

Page 25. — The number of still-births (452) does not include 38 unknown, probably still-born, found by the police.
Page 26. — For 2273, 5316, 1111, and 454, read 2276, 5324, 1114, and 440.
Page 30. — In the fourteenth line read *clearly* instead of *much less.*
Page 31. — In the second paragraph read *precede* instead of *follow.*

CITY OF BOSTON.

City Document No. 53.

FOURTH ANNUAL REPORT OF THE BOARD OF HEALTH OF THE CITY OF BOSTON.

MAY 1, 1876.

TO HIS HONOR THE MAYOR, AND THE CITY COUNCIL OF BOSTON: —

We herewith present the annual report of the Board of Health, for the year ending April 30, 1876, and including that day.

APPOINTMENTS, ETC.

On May 1, 1875, Charles E. Davis, Jr., was again chosen clerk of the Board, and on the 29th of April, subject to the Mayor's approval, we reappointed Samuel A. Green, M. D., City Physician, Alonzo S. Wallace, M. D., Port Physician, and George W. Forristall, Superintendent of Health, for the ensuing year.

The reports of the City Physician, the Port Physician, and the Superintendent of Health, accompany this report.

Thomas Kittredge, M. D., was reappointed Assistant Port Physician by Dr. Wallace, with our concurrence.

Our sanitary inspectors are the same as last year. Particular attention was paid throughout the hot weather to disinfecting all the lanes, courts, and by-places in the city, and this work was continued up to November, as appears in a table which follows later in this report.

REGISTRAR OF DEATHS AND BURIALS.

The office of Registrar of Deaths and Burials, created by us in 1874, with the approval of the Mayor, was, with like approval, abolished May 3, 1875, on which date, also with the approval of the Mayor, we adopted the following regulation: —

BOSTON, May 3, 1875.

Voted, That after May 4, 1875, no human body shall be buried in, or removed from, the city without a written permit from the Board of

Health, nor until the facts required by the first clause of Sect. 4, Chap. 21, of the General Statutes, shall have been returned to and recorded by said Board.

Voted, That in case the physician's certificate, required by the above-mentioned chapter, cannot for good and sufficient reasons be obtained, report thereof shall be made to this Board in season to obtain from the City Physician the certificate required before burial.

SMALL-POX.

At the date of our last report, as therein stated, there was but one case of small-pox in the city, that being in the hospital. The patient recovered and was discharged May 10. The next case was discovered in South Boston, on the 17th of June, and the patient was on that day taken to the hospital. This was a woman who had been in the city but a few days, having brought the disease with her from another State. On the 25th of June she recovered and was discharged. The next case was reported to us on the 1st of July. This was also in South Boston, and arose from the case last mentioned. The patient was a woman, who was too sick for removal, and who died the following day. Special pains were taken to guard the house, which was a tenement house. All the inmates were cared for, lest they should communicate the disease, and after the death of the patient the house was thoroughly fumigated. Fears were entertained that other cases would arise from this, as such a result seemed almost inevitable; but this one was all. On the 23d of July, a woman from the West, stopping at a hotel in the city, where she had been but a few days, was found to have the small-pox. She was removed to the hospital the same day, and was discharged on the 30th of July, fully recovered.

No other case, to our knowledge, occurred in the city until February 24th of the present year, when one was reported in East Boston. Upon visiting the place, the city physician was unable to find the patient, as he had wandered out about the city, bringing up the next day in the office of the Board of Health, whence he was taken to the hospital. He recovered, and was discharged on the 6th of March.

The next case, also in East Boston, was reported on the 18th of March. This was traced directly to the case last mentioned. The patient, a man of fifty, being too sick to be removed, the house was placed in quarantine, and such other measures were taken as we thought necessary for the public safety.

The next case, also in East Boston, was reported on the 27th of March. This was the case of a man forty-seven years of age, and was traced directly to the case of February 24th. He was removed to the hospital, and died April 2d.

Another case arose on the 18th of April from that of the 18th of March, in the same house; and still later in April a third case was discovered in the same house, all of whom have now fully recovered, and there is now, so far as we know, no case in the city.

There has been a number of *reports* of cases of this disease, but the city physician, who has examined all such, found none genuine, except those mentioned; and the only deaths from this cause during the year were the one of July 20, 1875, and that of April 2, 1876.

On the 24th of November we received the following communications, and deemed it proper thereupon to address to the Committee on Public Buildings the paper that follows: —

[COPY.]

CITY OF BOSTON.
IN THE BOARD OF ALDERMEN, NOV. 22, 1875.

Ordered, That the Committee on Public Buildings be and they are hereby authorized to take possession of the estate on Marcella street, owned by the city, and now held for the purposes of a small-pox hospital, and to make such repairs and alterations therein as may be required to fit the same for the accommodation of minors committed under the truant and vagrant acts; the expense, estimated at ten thousand dollars, to be transferred for that purpose from the reserved fund.

(Signed,) S. F. McCLEARY,
City Clerk.

[COPY.]

CITY OF BOSTON.
IN BOARD OF ALDERMEN, NOV. 22, 1875.

Ordered, That the Board of Health be and they are hereby authorized to fit up on Gallop's Island a suitable hospital for the treatment of contagious and infectious diseases; or whenever they deem it necessary may purchase, with the approval of His Honor the Mayor, a suitable lot of land and buildings, within the limits of the City of Boston, for the location of a hospital for contagious and infectious diseases; the expense, not to exceed the sum of twenty-five thousand dollars, to be charged to the appropriation for small-pox hospital.

(Signed,) S. F. McCLEARY,
City Clerk.

[COPY.]

BOSTON, Nov. 27, 1875.

To the Committee on Public Buildings of the City Council of Boston: —

GENTLEMEN, — In accordance with the expressed wish of the City Council, as communicated to us, we hereby respectfully surrender to you the Marcella-street Hospital.

In doing so, we recommend the most thorough disinfection of the entire building — the floors, walls, ceilings, and all interstices therein; and that they be so changed as to be absolutely free from any danger of communicating small-pox to future occupants.

For the Board of Health,

(Signed,) A. W. BOARDMAN,
Chairman.

YELLOW FEVER.

On September 7, schooner N. J. Miller, from San Domingo, arrived in quarantine, with two cases of yellow fever on board. They were removed to Gallop's Island, recovered in a short time, and were discharged. The schooner, after being properly disinfected and remaining a reasonable time in quarantine, was released.

On the 17th of December, the brig Elba, from Cuba, arrived in quarantine, about 9 A. M., with yellow fever on board. Some of the crew had been sick with this disease at Havana, and had recovered. But the captain was sick with it on entering port. He was removed without delay to the quarantine hospital at Gallop's Island. He was very sick, but recovered, and was discharged on the last day of the year. The Elba was thoroughly fumigated, and let out of quarantine on the 21st of December. There has been, to our knowledge, no other case of this disease.

QUARANTINE.

We have had no other case of quarantinable disease than those already mentioned. Early in April Capt. Wm. H. Sampson resigned as captain of the quarantine steamer, and Geo. T. Ranlett, former captain of the boat, was appointed to fill the vacancy. Capt. Sampson proved himself a faithful and competent officer. Capt. Ranlett's acceptance created a vacancy at Gallop's Island, which was filled by the appointment of Jacob Severance as overseer.

On the 15th of Sept., upon the resignation of Dr. C. Irving Fisher, as Port Physician, we appointed Alonzo S. Wallace, M. D., in his place. Dr. Fisher held the office for nearly three years, and was a conscientious, faithful and efficient officer.

SEWERAGE.

Upon this subject so much has been said by us in former reports and communications, and it has been so thoroughly gone over by the commission appointed by His Honor the Mayor, that we deem it proper now only to submit the following, which is the substance of a communication we have already prepared, to be presented at an early date: —

To the Committee on Improved Sewerage: — The subject of sewerage is one to which the attention of the Board of Health has been called almost daily since its organization. We have necessarily witnessed its defects and consequent evil results in almost all parts of the city, and have from time to time called the attention of the City Council to the necessity of a radical change in our whole system of sewerage. Year after year has passed, and the complaints of citizens have increased as the

evils have grown worse. In our report of 1873–74, the Back Bay was alluded to. (See page 49 of that report.)

In our annual report to the City Council for 1874–75, we alluded to the same thing. (See page 10 of that report.)

In a special communication of the Board to the City Council, in December, 1874, we referred to the Roxbury canal, Stony-brook sewer, Muddy-brook sewer, and sewerage in general. (See page 11 of that report.)

The population of Boston at the time of the taking of the last census was, in round numbers, 342,000. Since the year 1820, the population of the district, within the circle of six miles radius from City Hall, has doubled every eighteen years. At the same rate of increase, in thirty-six years from the date of the last census, Boston would contain a population of 1,368,000.

There can be no reason to doubt but that at the end of this period Boston will at least have doubled her present population.

That some provision should be made to correct the present bad condition of our sewerage, and meet the requirements of the immediate future, must, as a matter of economy, be apparent to every one. What that provision should be but few are competent to determine. Acting under this conviction, the Mayor and City Council appointed three skilful men, of well-established reputation, to consider the subject, and devise some plan which would utilize the present system, correct its defects, and meet the requirements of generations to come. If the plan recommended by the commissioners should not be adopted, to whom shall we look for a plan more practicable? It seems to us to meet the case completely. The strongest argument brought against it is its cost. The citizens of Boston have not been slow to adopt other improvements, and we cannot believe that, when their health is in question, they will hesitate because of the expense.

If it is borne in mind that it will be a number of years before the works can be completed, and that the expense of construction will be divided over those years as the work progresses, it will be seen that the burden upon the tax-payers will not be felt as some would have us believe.

If it be further borne in mind that to carry out the propositions to extend the Stony-brook sewer a distance of three miles; to divert the filth in the Roxbury canal; to extend the mouths of sewers into deep water in Charles river; to dredge the flats in the river and South bay, and other expensive measures, will necessitate the outlay of a large sum of money, affording but partial and temporary relief, and which will be rendered unnecessary by the commissioners' plan, it will be seen that the difference in the cost of the two schemes will be very small; not so, however, with their results. We believe that it has been clearly shown that our sewers are largely in a stagnant and filthy condition; that their inability to discharge their contents, before putrefaction takes place, is a great source of nuisance and danger to the health of the people. Sanitarians, the world over, are agreed that the foul gases emanating from decomposing sewage are among the most fruitful sources of disease and death. We believe it has been clearly shown that the average death-rate in Boston, for many years, especially from preventable causes, has been far above the normal rate. In some parts of the city, where the soil-water stands much of the time near the surface of the ground, and the sewers are ineffectual, the mortality is alarming.

The houses in that section of the South-cove District lying between Troy street and the Boston and Albany Railroad, we consider unfit for habitation. There can, we think, be no question but that the large amount of sickness prevailing there is due in a great measure to imperfect drainage. From May 1, 1875, to April 30, 1876, in that small

section there were sixty-one deaths of children under five years of age. There are other parts of the district in but little better condition. There is a large territory south of Dover street, in which the cellars are frequently flooded and kept foul, damp and exceedingly unhealthy much of the time, by sewage and surface water, and the consequent decaying of floors and other material. In some instances the owners have filled up the basements and yards of their houses to a higher grade, but while adjoining estates remain in the same condition as before, the remedy is but partial. The only sure relief from the difficulty is either to fill up the whole territory to a higher grade, at an immense expense, or to provide for a free and continuous flow of sewage outward, which we feel confident the plan of the commissioners will effect.

It has been said that "it is to the neglect of local drains and house fixtures that most of the complaints have arisen, which have provoked the discussion of this subject; and with sickness traceable to such causes, and continual discomfort prevailing, the parties most interested still wait for the city to carry out costly measures, thinking thus to abate their private nuisance."

But is it possible that the gentleman who said this did not know of the constant complaints that come to us of the Stony-brook sewer, of the Muddy-brook sewer, of the Back-bay flats, of the South-bay flats, of the Charles-river flats, of the sewers that pour their filth into that river, of the sewer at Roxbury canal, of the sewer at Federal-street bridge, of the sewer at Hittinger's wharf in the Charlestown District, and of the balance of the eighty-seven sewers, whose mouths encircle the city, from which the foul gases escape, poisoning the air, and finding their way through the windows and doors of our dwellings, waking thousands of unsuspecting people from sound sleep, and starting them from their beds to close their windows against this foul enemy? Did he not know of the complaints of the flooding of cellars with offensive and unhealthy sewage; of the frequent opening of sewers to clean the catch-basins, and the carting of their contents through the streets? And have these, or any one of these, any concern with "local drains and house-fixtures"?

The complaints of bad odors from sewage made at this office are of two classes, one of which arises from causes within, and the other from causes without our dwellings. The one is of a private, and the other of a public character. The one is amenable to local, and the other to general treatment. Defects in the one are soon discovered and remedied, while the defects in the other must be remedied, if at all, by the public. No one, knowingly, will allow his own life or the lives of his family to be endangered, if in his power to prevent it. Therefore, local causes of disease are remedied; but when exposed to general causes, the individual is powerless.

"The drainage of tenement houses and of houses of the poorer class is under the constant inspection of this Board. Defects are frequently found, and measures at once taken to remedy them. That bad odors from defective sewers exist to a large extent, to the discomfort and disadvantage of a large portion of our citizens, affecting both their health and property, is a well-accepted fact which no one of ordinary intelligence will be bold enough to deny. House drains, when perfected to the last degree of our present knowledge of traps, will avail but little against the force of sewer gases, subjected, as they are, to the additional force of wind and tide. When our sewage has a quick and uninterrupted flow from its origin to a point at a safe distance from the city before putrefaction can take place, then only can we safely ventilate our sewers, through frequent openings in the streets, as should be done. Then only can we render the traps and other fixtures of our houses of any avail. Then, *and only then*, may we expect relief from the constantly increasing evils of our present system of sewerage.

DRAINAGE OF SOIL.

Scarcely any more important subject can engage the attention of sanitarians than that of soil drainage. It may be second only to a proper system of sewerage. No piece of land can be said to be fit for a dwelling until it has been provided with natural or artificial means by which its surface can be kept dry. The bottom of the cellar should be at least three feet above the level of the soil water. In Boston only a small portion of the territory is so situated as to drain its soil to a proper sanitary level. The rest contains water at different levels up to the very surface, and in many places water stands on the top of the ground much of the year.

There are acres upon acres densely covered with tenement and other dwelling houses, whose cellars and basements are wet throughout the year, and whose yards are seldom dry.

Consumption in Boston for the last twelve months caused the death of 1,361 persons. This and many others of the prominent diseases are largely and unfavorably influenced by wet soil and the dampness of houses arising therefrom.

This and other countries are not without repeated instances where good soil drainage has been carried out, and a marked decrease of miasmatic and other diseases followed.

The sewers of Boston are not adapted by their depth or character to drain the soil by percolation, and in many instances they are not deep enough to drain the surface of land which is at city grade.

The remedy for this evil has been found only by digging deep trenches (in unoccupied land), or by laying deep porous pipes of sufficient size and number to receive and carry off the surplus water. The water level should be at least ten feet below the surface of the ground, where cellars are to be made, and three to four feet if no cellar is to be used.

As a sanitary measure we respectfully urge its consideration by the City Council.

BREWERIES.

Complaints having been made by those living in the immediate vicinity of some of the many breweries, situated in the outlying districts of the city, we determined early in the spring to have the subject investigated, and one of the medical inspectors was requested to examine into the causes of the alleged nuisance. He accordingly visited most of the breweries within the city limits, including all those against which complaints had been received. Among others inspected were those of G. F. Burkhardt, H. & J. Pfaff, J. Roessle, Reuter & Alley (Highland Spring Brewery), and the Burton

Brewery. In all these establishments the business was found to be carried on in a systematic and proper manner.

The only possible cause of complaint which could be noticed was the arrangements made for the reception and preservation of what are known as the brewers' grains, a name given to the refuse matter from which the soluble elements which enter into the composition of the beer have been extracted. These "grains" in warm weather undergo a very rapid decomposition, and the smell which then arises from them is extremely disagreeable. Arrangements are made at all the large breweries to see that these "grains" are never allowed to accumulate upon the premises, the design being to have each day's refuse removed within the following twenty-four hours. If these arrangements are carried out, there would then be no farther cause of complaint.

SLAUGHTERING ESTABLISHMENTS.

The efforts made in years past by the State Board of Health, and by this Board, to regulate the business of slaughtering, have, until recently, been attended with but partial success. Some of the slaughterers were irresponsible, and others unprincipled men, who were not easily controlled, one of whom even setting at defiance an injunction from the Supreme Judicial Court. Diseased cattle and immature calves, which were unfit for human food, have been killed, and others that died from disease or injuries have been dressed and offered for sale in the city, or manufactured into Bologna sausages, to be eaten by the unsuspecting. Several lots of this meat have been seized, and the owners prosecuted, convicted and fined for violation of law. The orders of the Board were evaded by a simple change of locality, or an exchange of places, the one with another, or by change of ownership. Finding it difficult to deal with them singly, the Board, acting under the provisions of Sect. 5, Chap. 26 of the General Statutes, issued the following order: —

OFFICE OF THE BOARD OF HEALTH,
BOSTON, November 8, 1875.

Notice to Slaughterers and Renderers. — By virtue of the authority given by chapter 26 of the General Statutes, the Board of Health of the City of Boston makes the following regulation: That on and after Nov. 30, 1875, the trade or employment of slaughtering cattle, calves, sheep or swine, or of rendering tallow or other refuse animal matter, shall not be carried on within the limits of the City of Boston, except on the islands of the harbor, at the Abattoir in the Brighton District, or at such other place or places as may hereafter be assigned by the Board of Health. Attest: WILLIAM L. HICKS,
Clerk pro tem.

A true copy. Attest: WILLIAM L. HICKS, *Clerk pro tem.*

At the present time no slaughtering is done outside of the Abattoir, to the knowledge of the Board, except at two small places in the West Roxbury District, near the Dedham line. As these were remote from the thickly settled portions of the city, and no complaints of them had been made to the Board, it concluded to let them remain for the present. The Abattoir, which has hitherto been under the supervision of the State Board of Health was, at the last session of the Legislature, transferred to the charge of this Board by the following act: —

[CHAP. 144.]

AN ACT to amend an Act to incorporate the Butchers' Slaughtering and Melting Association in Brighton.

Be it enacted, &c., as follows: —

SECTION 1. Section six of chapter three hundred and sixty-five of the Acts of the year eighteen hundred and seventy is hereby repealed; and sections two and four of said act are hereby amended by striking out the words "State Board of Health" where they occur in said sections, and substituting in place thereof, Board of Health of the City of Boston.

SECT. 2. From and after the first day of June in the year eighteen hundred and seventy-six, the business of slaughtering shall not be conducted within the limits of the City of Boston except upon the premises of the Butchers' Slaughtering and Melting Association in said city.

SECT. 3. The said association shall, within a reasonable time, slaughter all cattle, sheep and calves, which may be brought to their premises for that purpose by persons not occupying tenements therein, whenever the accommodations under their control on said premises will permit. They shall also prepare the meat and other products of such animals for the market. They may charge, in addition to the offal from said animal, such price per head as may be mutually agreed upon; and, in case of disagreement as to price, the same shall be fixed by the Board of Health of the City of Boston.

SECT. 4. Said Board of Health of the City of Boston is hereby authorized to appoint one or more inspectors, to see that the rules and regulations for the conduct of the business of the association for the time being are fully obeyed by said association and their tenants, and also to see that none but healthy animals are slaughtered; the salary or salaries of said inspector or inspectors to be established by the City Council of said City of Boston, The said inspector or inspectors shall at all times have access to the premises of said association, and any building thereon, and also to the premises, yards or cars of any railroad company within the City of Boston, for the purposes of examination, inspection and seizure of any meat or animals unfit for human food.

SECT. 5. Said Board of Health of the City of Boston is hereby authorized to make whatever regulations may seem to them fit in order to prevent the slaughter and sale of animals unfit for human food. [*Approved April* 17, 1876.]

The latest and most approved methods of slaughtering cattle, and disposing of the refuse, have been adopted at the Abattoir; experienced and skilful men have been employed in and about the works, and thus far the business has been conducted well, in the main, although not without some offence.

RENDERING ESTABLISHMENTS.

For many years past there have been serious complaints of the bone-boiling and fat-rendering establishments. Frequent and urgent appeals have been made to the Board, to prohibit the business within the limits of the city. The Board has from time to time visited these premises, and has as often found that the machinery and appliances for consuming the gases were defective and insufficient, and that all the efforts of the proprietors to render them inoffensive have thus far proved ineffectual. The refuse material which is rendered, is collected, during the day, from the markets, hotels, restaurants, and private houses. Through the warm weather this refuse becomes badly tainted before it is collected, and is oftentimes a mass of corruption extremely offensive to sight or smell. At night it is placed in kettles, or retorts, and subjected to heat, thus liberating the gases, which fill the air with their sickening odors, and which have been perceptible for a long distance from the premises. Hoping that the proprietors of these establishments might succeed in their experiments to consume these gases and render their establishments less offensive, the Board delayed definite action until November 8, 1875, at which time the notice to slaughterers and renderers, heretofore mentioned, was issued.

After the publication of this regulation, we sent by mail printed copies thereof to every person, who, so far as we could ascertain, was carrying on either of said employments in the city, and we afterwards served the following legal notice upon every such person — eighteen in all: —

OFFICE OF THE BOARD OF HEALTH,

BOSTON, Nov. 1875.

By virtue of the authority given in Chapter 26 of the General Statutes, the Board of Health of the City of Boston hereby forbids the exercise, on or after November 30, 1875, of the trade or employment of slaughtering cattle, calves, sheep, or swine, or of rendering tallow or other refuse animal matter within the limits of the City of Boston, except on the islands in the harbor, at the Abattoir in the Brighton District, or at such other place or places as may hereafter be assigned by said Board; such trade or employment being in the opinion of the Board a nuisance, hurtful to the inhabitants, the exercise of which is attended by noisome and injurious odors.

C. E. DAVIS, JR., *Clerk.*

Three of the parties engaged in slaughtering, on whom legal notice had been served, claimed an appeal under Chapter 26 of the General Statutes, and the appeals are now pending in the Superior Court.

The Board, in order to give the proprietors time to find some other locality remote from the city to which they might

remove their works, issued the following permit, with the distinct understanding that on the 30th of April the business should be discontinued: —

OFFICE OF THE BOARD OF HEALTH,

BOSTON, 187

Permission is hereby given to to exercise the trade or employment of rendering tallow, fat, bones, or other animal matter at his factory, situated on street, in the City of Boston, until April 30th, 1876, unless otherwise ordered; it being understood that after that date such business shall be discontinued.

Provided, That the tallow, fat, bones, or other animal matter, be heated, melted, boiled, burnt or rendered in steam-tight vessels, and the gases and odors therefrom be destroyed by combustion or other means equally effective, and according to the best and most improved means and processes.

That the scrap or residuum be so dried or otherwise prepared as effectually to deprive such material of all offensive odors.

That no tallow, fat, bones, or other animal matter be suffered to remain on or about the premises previous to being rendered, except in tight-covered tanks.

That the floors, machinery, boilers, and all other parts of the premises be kept in a neat and cleanly condition, and so disinfected that no offensive odors shall arise therefrom.

That all waste water and other refuse liquid matter be conducted by a suitably covered and properly trapped drain into the street sewer.

Any violation of the above provisions will be sufficient cause for the revocation of this permit.

C. E. DAVIS, JR., *Clerk.*

Nothing, however, was done when the time expired, and, at the request of some of the proprietors, it was extended to the 31st day of May, 1876, at which time the Board purpose to enforce its regulation.

INSPECTION OF PROVISIONS.

We have always deemed it proper to say nothing in praise of any one connected with this Board. If such a reward is deserved, it must come, if at all, from another source. But, as the Inspector of Provisions, Mr. John H. Terry, is not appointed by us, and as we have, or ought to have, better knowledge of his usefulness than many, we feel we should be doing a great injustice if we did not state in this report that he is an honest, untiring and faithful officer, and of great value to the city. By his report submitted to us to-day, it appears that he has condemned and destroyed during the year under the statute: —

124 carcasses of veal.
9 saddles of veal.
25 lbs. of veal.
1,526 lbs. fresh beef.

485 lbs. corned beef.
60 lbs. mutton.
14 carcasses mutton.
693 lbs. fish.
2 doz. lobsters.
167 lbs. turkeys.
58 lbs. geese.
115 lbs. ducks.
968 lbs. chickens.
14 bushels peas.
2 bushels beans.
710 cucumbers.
206 crates peaches.
½ box oranges.
72 different lots of green apples.

Sixty-one complaints have been instigated, 11 seizures advertised, 9 complaints in Court have been made, 7 of which have been sustained.

One of these remaining complaints was for having unripe vegetables for sale; the party was found guilty in the Court below, but on appeal acquitted by a jury on the ground that that he was ignorant of having them in his possession. The other complaint, for having veal under four weeks old with intent to sell, was sustained in the Court below, and a fine imposed, but on appeal the party was acquitted by a jury, on the ground that they were not satisfied that he intended to sell the veal.

The fines and costs imposed in the other cases amounted to $285.90.

A new law upon the subject was recently passed, which we trust will be adopted by the City Council. The law is as follows:—

[CHAPTER 180.]

AN ACT to provide for the appointment of inspectors of provisions, and animals intended for slaughter, in cities and towns.

Be it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows:—

SECTION 1. The Mayor and Aldermen of cities, and the Selectmen of towns, may annually appoint one or more persons to be inspectors of provisions and animals intended for slaughter, who shall be sworn to faithfully discharge the duties of their office, and who shall receive such compensation as the City Council of cities, or the Selectmen of towns, shall determine.

SECT. 2. Said inspectors shall have power to inspect all animals intended for slaughter, and all meats, fish, vegetables, produce, fruits, and provisions of all kinds found in said cities or towns, or exposed for sale or kept with intent to sell therein; and may for this purpose enter into all buildings or enclosures where said animals, meats, fish, vegeta-

bles, produce, fruits or provisions are kept, stored or exposed for slaughter or sale. When such animals, meat, fish, vegetables, produce, fruit or provisions are found on such inspection to be tainted, diseased, corrupted, decayed or unwholesome from any cause, said inspectors shall seize the same, and cause them or it to be destroyed or disposed of, otherwise than for food; *provided, however*, that if the owner of the property seized shall at the time of the seizure notify said inspector, in writing, of his desire to appeal to the Board of Health, said inspector shall cause said animals, meat, fish, vegetables, produce, fruit or provisions to be inspected by said Board of Health, or by a committee thereof consisting of not less than two members; and if said board or committee shall find the same to be tainted, diseased, corrupted or unwholesome, they shall order the same to be destroyed or disposed of otherwise than for food; if said board or committee shall not so find, they shall order said animals, meat, fish, vegetables, produce, fruit or provisions to be forthwith returned to the owner thereof. All moneys received by said Inspector or Board of Health, for property disposed of as aforesaid, shall, after deducting all expenses incurred by reason of such seizure, be paid to the owner thereof.

SECT. 3. Said inspectors shall have the power to inspect all veal found in said cities or towns, or offered or exposed for sale, or kept with intent to sell therein, and if said veal is, in the judgment of the inspectors, that of a calf killed under four weeks old, he shall seize the same and cause it to be destroyed or disposed of as provided in the preceding section, subject, however, to the same provisions concerning appeal and the disposal of moneys that are therein contained.

SECT. 4. When complaint is made on oath to any police, municipal or district court, or magistrate authorized to issue warrants in criminal cases, that the complainant believes that any diseased animals, or any tainted, diseased, corrupted, decayed, or unwholesome meat, fish, vegetables, produce, fruit or provisions of any kind, or veal of any calf killed under four weeks old, is kept or concealed in any particular house or place with the intent to kill, sell or offer the same for sale for food, the court or magistrate, if satisfied there is reasonable cause for such belief, shall issue a warrant to search for such animals or articles, and all such warrants shall be directed and executed as provided in the third section of chapter one hundred and seventy of the General Statutes. If, upon hearing, said court or magistrate shall determine that said animals or articles, or any of them, were kept or concealed for the purposes aforesaid, the same shall be destroyed or disposed of by the inspector, or by any officer designated by the court or magistrate, according to the provisions of the second section of this act; if the court or magistrate shall not so determine, said animals or articles shall be returned to the owner.

SECT. 5. Whoever knowingly sells, or offers or exposes for sale, or has in his possession with intent to sell for food, any diseased animal, or any tainted, diseased, corrupted, decayed or unwholesome meat, fish, vegetables, produce, fruit or provisions of any kind whatever, shall be punished by imprisonment in jail not exceeding sixty days, or by fine not exceeding one hundred dollars.

SECT. 6. The place where property condemned under this act shall be found, and the name of every person in whose possession it may be found and condemned, or who shall be convicted of an offence under section five of this act, shall be published in two newspapers published in the county.

SECT. 7. The foregoing sections of this act shall not be in force in any city or town unless this act shall be adopted by the City Council of such city, or by the inhabitants of such town.

SECT. 8. Chapter twenty-nine of the Acts of the year eighteen hun-

dred and seventy-five is hereby repealed; *provided*, that nothing herein contained shall affect any prosecution now pending, or any penalty or forfeiture already incurred.

[*Approved April* 26, 1876.]

WET LANDS AND STAGNANT WATER.

The low marsh lands in the Highland, Charlestown, Brighton, and West Roxbury Districts, mentioned in our report for 1874, remain in much the same condition. The Board still adheres to the opinion therein expressed, "that no marsh land should be allowed to be inhabited, nor a building allowed to be placed on it, until proper and sufficient drainage is provided, independent of sewerage."

Most of the houses now built upon these lands have no means of drainage, except upon the surface, or into the little creeks or channels of the marshes, which soon become filthy and offensive pools, rendering these districts very unhealthy. The evils resulting from neglecting to provide sufficient drainage before such lands are built upon, were experienced in the Church-street and Northampton-street Districts, and were only remedied at a vast expense. Unless some measures are taken in advance to secure proper drainage for these low lands, we shall be subject to like evils and expense.

In many parts of the city there are areas of unoccupied lands, the surfaces of which are covered with stagnant water most of the year, and are made the receptacles for dead dogs, cats, and other filth. During the summer the water becomes covered with a green slime, and is at times exceedingly offensive, especially when disturbed by the wind or othrewise. Notices have been sent to the owners from time to time, but the instances are rare where they have taken any measures to abate the nuisances. The fee of the land being often in dispute, it has been difficult to trace the ownership, and, not infrequently, when the owner has been found he has proved to be an irresponsible person. The efforts of the Board to get the evil removed by such parties have proved unavailing. Some of these lands have been filled, by the direction of the Board, to a higher level, in order to drain them into the sewers, which, in many instances, were at too high a grade to permit of the drainage of the land in its former condition. In some instances the cost of filling has been paid by the owners without question; in others the bills have been placed with the City Solicitor for collection. The accumulation of a considerable portion of this water is due to the overflow of the surface-water from the sidewalks. In all such places the walks should at once be raised to a higher level.

CEMETERIES AND BURIAL-GROUNDS.

The cemeteries and burial-grounds in charge of this Board are a continuous and yearly increasing expense to the city. Many of the fences are old and dilapidated, requiring large repairs. The walls have been affected more or less by the frost, and portions of them have already been relaid. The high wall of the Copps Hill Cemetery has been considerably thrown out of line, and will soon require relaying. The monuments are crumbling away, and must, in the course of a few years, be replaced or removed altogether. Many of the tombs have fallen in, exposing their contents, and have been repaired at the expense of the city, in consequence of the difficulty of finding the proprietors. If these tombs are to be kept in good condition, they should be filled up with earth and closed against further burials. Every year has lessened the number of those who feel an interest in these tombs. Only so much money has been expended by the Board upon these grounds as was absolutely necessary to keep them in decent condition.

The work of ascertaining the names of the proprietors is progressing slowly, in consequence of the difficulty of tracing the proprietorship from deficient and imperfect records. The Board, as time elapses, is still more convinced that it would be for the best interest of the proprietors and the city to have the contents of these grounds, lying in the city proper, removed to some cemetery without the limits, or remote from the centre of the city, and the grounds utilized for some other purpose.

HOUSES ORDERED TO BE VACATED.

The number of houses and tenements ordered to be vacated was 148; the number actually vacated, 67. The reasons for such action were various; filth, stagnant water, defective drainage, defective and offensive vaults, and want of repair being the prominent ones. In most if not all the cases, the statute notice was first served upon the owner to put the premises in a habitable condition, and only upon his failure to do this have we followed such notice up with an order to vacate. Those not vacated after service of such order were allowed to remain unmolested, for the reason that they had been put into proper sanitary condition before the expiration of the time given.

The following is a list, with the date of the order, those accompanied by a * having been actually vacated: —

May	10.	— Rear Parker st., near Boston & Albany R. R.,	Ward XV.
"	"	— " 41 * Chapman st.	C. D.
"	"	— 3 Chapman place	C. D.
"	"	— 3, 5, and 7 * Babcock court	C. D.
"	29.	— Rear 82 * West Cedar street	Ward VI.
"	12.	— 1, 2, 5, 6 and 7 Tucker place	" VI.
June	1.	— 2, 3, 4, 5, 6, 8 and 9 Marble street	" XIV.
"	24.	— 1 * Barnard place	" XII.
		1, 2, 3, 5, 15, 27, 29, 35, 43, 52 and 54 Alger st.	" XII.
July	14.	— 23 * Shawmut ave.	" IX.
"	"	— 227 * Pynchon st.	" XV.
"	"	— 1st *, 3d *, and 4th* houses (Smith's Block), Terrace st.	" XV.
"	19.	— 696, 700, 702, 706 and 708 Dorchester ave.	" XII.
Aug.	5.	— 7 and 9 Greenwich st.	" XIV.
"	9.	— 44 Fleet st.	" II.
"	10.	— 3 *, 5 *, 7 * Mindoro st.	" XV.
"	"	— 34 Hampshire st.	" XV.
"	16.	— 10 * Hancock st., basement	" VI.
"	24.	— 10 * and 12 Lowell st.	" III.
"	"	— 2 * Barnard place	" VII.
"	27.	— 194 * Bennington st.	" I.
Sept.	1.	— 628 * and 630 * Albany st.	" XIII.
"	14.	— 65 Salem st.	" II.
"	"	— 3 Eaton place	" IV.
"	8.	— 7 Mystic place	Ward XXII.
"	10.	— Rear 262 Third st.	" XII.
"	25.	— 242 *, 248 *, 250 *, 884, 886, 888 and 890 Second street	Wards VII. and XII.
"	28.	— * Cabot place	Ward XIV.
"	"	— 164 Cabot st.	" XIV.
Oct.	8.	— 18 * Province court (portion of)	" IV.
"	9.	— 2 and 3 Notre Dame st.	" XV.
"	"	— 1 * Acton st.	" X.
"	"	— 9 * Clark st.	" II.
"	"	— Rear 201 and 203 North st.	" II.
"	16.	— 37 Windsor st.	" XIV.
"	19.	— 86 and 88 Phillips street	" VI.
"	"	— 1, 2 and 3 Primus ave.	" VI.
"	22.	— 74 * and 76 * Westminster st.	" XIV.
"	27.	— 50 * Chapman st., cellar	" X.
"	"	— 1, 2 and 4 Davis place	" XIII.
"	"	— 62 * Hunneman st., cellar	" XII.
"	"	— 3 Spring court	" XIII.
"	"	— 24 * and 26 * Webber st.	" XIII.
"	"	— 6 Fellows st.	" XIII.
"	28.	— Gerard st., 1st * house, east side, N. of Norfolk ave.	
Nov.	4.	— 20 * Prince st.	" II.
"	8.	— 31 Millmont st.	" XV.
"	24.	— Gerard st., 2d * house, on right from Norfolk avenue.	
"	"	— 1 * McLean court	" III.
"	"	— Rear 477 Harrison ave.	" X.
"	"	— 137 * Kneeland st., basement	" VII.
Dec.	2.	— 2, 4 and 5 Davis court	" III.
"	"	— 6 Lehigh st.	" VII.
"	"	— 107 * Northampton st.	" XI.
"	3.	— 290 and 292 North st.	" II.
"	11.	— 73 * Cove st.	" V.

Dec.	18.	— 24 * Troy st., cellar	Ward VII.
"	29.	— Rear 224 * Cabot st.	" XIV.
"	31.	— 105 * Cross st.	" II.
1876.			
Jan.	18.	— 22 * Dove st., cellar	" XII.
Feb.	1.	— 22 * Athens st., "	" VII.
"	"	— Rear 11 * Athens st., basement	" VII.
"	4.	— 107 * Northampton st., 2d time	" XI.
"	"	— Cuddy's * Block, Swett st.	" XIII.
"	7.	— 2 Davis court	" III.
"	18.	— 30 Windsor st.	" XIV.
March	14.	— 4 Coburn place	" XIII.
"	"	— 16 and 18 Fellows st.	" XIII.
"	16.	— 5 * Ontario st., cellar	" VII.
"	17.	— 101 East Dedham st.	" X.
"	25.	— 165 * Bennington st.	" I.
April	7.	— 255 * Harrison ave.	" VIII.
"	"	— 1 *, 2*, 3 *, 5*, and 12 * Vinal place	" VIII.
"	8.	— 320 Federal st.	" V.
"	10.	— 44 * Prentiss st.,	" XV.
"	"	— Rear 51 Pembroke st.	" XV.
"	12.	— 157 North st.	" I.
"	15.	— 150 Beach st.	" V.
"	"	— 37 * Lincoln st.	" V.
"	"	— Rear 68 Kingston st.	" V.
"	"	— 4 *, 5 *, 6 *, 7 *, 8 *, and 9 * Long Block, Swett street	" XIII.
"	17.	— 493 Hanover st.	" II.
"	"	— Fillmore place, 1st * and 2d * on left, 2d * and 3d * on right	" II.
"	28.	— 12 Riverside st.	" XV.

URINALS.

Two new urinals have been erected during the year; one of these for men, which was placed upon the vegetable-market-grounds between India street and Atlantic avenue, is a wooden building, 21 ft. by 11 ft., provided with eight water-closets and seven urinals. The other, for men also, placed on the vegetable-market grounds at the corner of Mercantile and Clinton streets, is an iron building, 14 ft. by 10 ft., and provided with six water-closets and four urinals.

It has, on good authority, been represented at this office that at least three thousand workingmen in the vicinity of these urinals were without any privy accommodations whatever, until last season.

Some delay in the erection of others has been occasioned on finding that the City Council had not authority to permit the placing of urinals in the public streets and ways, and upon the Public Garden. Therefore, to protect the one already placed upon the Public Garden, and to obtain authority to place others in the streets, application was made to the Legislature the past winter, and the following act secured: —

[CHAP. 65.]

AN ACT relating to Public Urinals in the City of Boston.

Be it enacted, etc., as follows: —

SECTION 1. The City of Boston, by vote of its City Council, shall have power to erect and maintain urinals for public use in any street, way, court, public square, common, or common lands in said city, and likewise in the Public Garden, so called, lying to the eastward of Arlington street, therein. And any owner of land who suffers any injury in his property by reason of the construction of any urinal as aforesaid, may, at any time within one year after the construction is commenced, apply to the Superior Court for Suffolk County for assessment of his damages by a jury, and have his damages ascertained in the manner provided where land is taken in laying out highways.

SECT. 2. This act shall take effect upon its passage.

[*Approved March* 22, 1876.]

As soon as proper locations along some of the main thoroughfares of the city can be determined upon, permission will be asked of the City Council to erect small ones, which will be of moderate cost, and will supply the conveniences for more universal use. Our narrow streets and sidewalks do not admit of an easy location of urinals, like many other cities, and we shall be able to overcome the difficulty in only a few of the broader avenues. Those which have been built upon the Common and Public Garden have been open during the entire year, and have been kept in the most orderly and neat manner by the attendants. Their appreciation by the public has met the most sanguine expectations. The same may be said of the other thirteen, which are smaller, and scattered over the city, and are all kept in a cleanly condition by one man, whose duty is to visit each one several times daily.

NIGHT SOIL.

The removal of night soil has been conducted, wherever practicable, by the odorless excavating process. We believe it has given general satisfaction, and that the work has been well done by the contractor. The number of orders received for emptying vaults was 3,864.

GREEN HIDES, HORNS, ETC.

As there is a number of places in the city where green or green-salted hides are cured or stored, in some instances giving out an offensive odor, and as very little care seemed to be taken by certain persons engaged in this business so to conduct it as to give no offence, we thought it necessary that a regulation should be made upon the subject, and on the 7th of May we made and published the following order: —

Ordered, That from the first day of April to the first day of November, no green hides or horns shall be cured, stored, or be suffered to remain within the limits of the city, without a written permit from the Board of Health.

This order to take effect on the thirty-first inst.

We desired to fix such conditions upon the conduct of the business as would prevent offensive odors, having in view at the same time the extent of the business, and the rights and privileges of those engaged in it; we therefore issued permits reading as follows: —

Permission is hereby given to
to store or cure green or green-salted hides or skins in building numbered street, in the city of Boston, until otherwise ordered.

Provided, That such hides or skins are stored in no other place than the basement of the building; that the floor of the basement shall be made perfectly tight and impervious to liquids, with a proper pitch so that all liquids and filth shall readily escape from the floor into a suitable drain, the floors to be kept at all times in a neat and cleanly condition and so disinfected that no offensive odors shall arise therefrom; that no such hides or skins shall at any time be suffered to remain in or upon any street, place or sidewalk; that the horns shall be immediately removed and placed in brine.

Any violation of the above provisions will be sufficient cause for the revocation of this permit.

The following extract from the old records of the town of Boston is interesting as a matter of history.

On the 22d of March, 1799, the Board of Health of the town of Boston, of which Paul Revere was chairman, and John W. Folsom secretary, then sitting in the Senate Chamber of the Old State House, adopted the following among other regulations: —

Storing or keeping after the first day of May and until the first day of December in each year, within the town of Boston, any untanned hides, subjects them to seizure unless removed within twenty-four hours after notice being given by the Board; and notice is accordingly hereby given by them.

STABLE MANURE.

The ordinance upon this subject has been changed since the establishment of this Board, giving us the power to grant permits for the removal of manure at other times than those originally fixed.

We have tried to protect the rights of the people to cleanliness of the streets, and to pure and wholesome air, as well as we could, consistently with the desire of those having stable manure on hand to get rid of it as soon as possible and in the least offensive manner. In some places the stables are so constructed that there is no other place to load except upon

the sidewalk. In all these cases, and in these only, we have allowed the wagons to be loaded upon the sidewalk, provided only that the work should be done before six o'clock in the morning. The general regulation made and published by us is as follows: —

BOSTON, May 10, 1875.

REGULATION.

Ordered, That no manure shall be removed except in a tight canvas-covered vehicle, with the covering so secured to the sides and ends of the vehicle as to prevent the manure from being dropped or left in any street or way of the city in process of removal, and not loaded in or upon any street, lane, alley or passage-way, or upon or across any sidewalk.

Any violation of the foregoing order will subject the offender to prosecution.

In order better to detect those who were removing manure without a license and without taking pains to prevent its dropping upon the streets, we issued the following permit: —

Permission is hereby given to
to remove Stable Manure *on condition only that he complies with the following requirements:* —

1. Such manure shall *at no time be loaded in or upon any street, lane, alley or passage-way*, nor *upon or across any sidewalk.*
2. It shall be removed in a tight, canvas-covered vehicle, with the covering *at all times* so secured to the sides and ends of the vehicle, *while moving with a load* within the city limits, as actually to prevent the contents from dropping.
3. The number of this license shall be painted in figures, at least two inches in size, in some conspicuous position upon the vehicle driven.

Any violation of any one of the above requirements will revoke this license, and subject the offender to prosecution.

The number of permits issued was 541.

FISH PEDDLERS, ETC.

It has been the custom to require those who peddle fish, and those who remove bones, grease and refuse matter from the city, to report personally once every month at some convenient place; each person being required to bring his vehicle with him for reinspection. There were, however, too many who, having once obtained a license to peddle, etc., for a year, never reported for inspection, and the almost invariable excuse being that the horse of each delinquent had died on or about the day when the inspection should have been made, the better to accomplish our end, and, further, to prevent this alarming mortality (?) among the horses, we thought it best to license for a month only, and renew the license to all who reported and whose horses survived. Accordingly we issued a permit for the removal of grease, etc., as follows: —

No.

is granted a license to remove from the city, bones, grease and refuse matter (house offal excepted) for *one month* from April 1, 187 , upon compliance with the following rules: —

1st. All vehicles and vessels for the transportation of the above-named substances shall be inspected on the first day of each month. They shall be made and kept in such condition as will prevent the escape of any of their contents, or the odor thereof, and entirely conceal the same from view.

2d. Every vehicle so used shall have the name of the owner, and number of the wagon, in letters and figures two inches in size, painted thereon, in some conspicuous position.

3d. When the holder of this license discontinues the business for which it is granted, he shall return it to this office.

4th. Any violation of the above rules will cause a revocation of this license, and subject the offender to prosecution.

This license will be renewed *only upon application at the yard of the City Stable, North Grove street,* on the morning (between 8 and 12 o'clock) of the first day of each month, or the following day when the first day comes on Sunday.

And for fish peddling, as follows: —

No.

is granted a license to sell within the city limits for *one month* from April 1, 18 .

This license will be renewed only upon application at the yard of the City Stable, in North Grove street, in the afternoon (between 1 and 4 o'clock) of the first day of each month, and upon compliance with the following rules: —

1st. This license is not good for any other person than and must be carried by him whenever selling such articles.

2d. All vehicles and vessels for the transportation of the above-named substances shall be made and kept in such condition as will prevent the escape of any of their contents, or the odor thereof, and entirely conceal the contents from view. They shall be inspected the first day of every month, at the City Stable in North Grove street.

3d. Every vehicle used for the above purpose shall have the name of the owner, and number of the vehicle, in letters and figures two inches in size, painted thereon, and also the number on the box, in some conspicuous position.

4th. The holder of this license is prohibited from crying his wares in the street to the disturbance of the inhabitants, and when he discontinues the business he shall return it to this office.

5th. Any violation of these rules will cause a revocation of this license, and subject the offender to prosecution.

The number of licenses issued for removing grease, etc., was 120; for peddling fish 563.

HOUSE OFFAL, FILTH, ETC.

The ordinance relating to throwing dirt, or filth of any kind, into the streets, alleys, etc., not being comprehensive enough to cover some cases that we had, or at least such having been the decision of one of our courts, and as we thought it as necessary to restrain the negligent and careless dropping, as

the wilful or malicious throwing of filth in the street, on the 8th of May we made and published according to law, the following regulation: —

Ordered, That no person removing manure, house-offal, swill or filth of any kind, shall suffer it to leak or escape from any vehicle, by him owned or driven, in or upon any street, court, square, lane, alley, wharf or public enclosure, in the City of Boston.

The following table shows nuisances abated during the year: —

Vaults and privies*	3,559
Drains	1,412
Yards cleaned	2,378
Cellars cleaned	893
Receptacles for garbage, etc.	174
Cleaned generally	95
Roofs repaired	36
Stagnant water removed	429
Whitewashing	177
Repairs made	20
Fowls removed	85
Swine removed	26
Ventilation remedied	4
Exposed manure	76
Passage-ways cleaned	1,639
Cesspools cleaned and repaired	2,038
Vacant lots cleaned	142
Wet lands remedied	9
Gutters cleaned, deodorized, etc.	917
Urinals cleaned, deodorized, etc.	137
Sundry complaints remedied	236
	14,482

PROSECUTIONS.

The number of complaints for violation of health laws and ordinances was 87. The amount paid in fines and costs was $982.91. In this number and amount, however, are included the cases reported by the Inspector of Provisions, which are given elsewhere in this report.

MORTALITY RETURNS.

A matter of the first importance in making up statistics of mortality is the physician's certificate. The statute upon this subject reads as follows: —

* This does not include those that were voluntarily entered to be cleaned.

Any physician having attended a person during his last illness shall, when requested within fifteen days after the decease of such person, forthwith furnish for registration a certificate of the duration of the last sickness, the disease of which the person died, and the date of his decease, as nearly as he can state the same.

Then follows the penalty for neglect or refusal.

In a criminal case brought under the above section of the statute, there would be no question as to what "any physician" meant, inasmuch as the term would include any person who held himself out as such.

But for the purpose of gathering reliable data under this statute, this all-embracing method of defining the word physician does not give the highest satisfaction or the best statistics. The art of healing may be promoted, but the science of reasoning by induction is not, by acquisitions to the medical profession of men and women, who would return a certificate similar to the following, which is a verbatim copy of one received at this office during the year: —

"This certifies that A beby boy died on the *born*day of Febberiy, 1876. Cause of death, "*Born*."

her
M — × R —
mark.

Or who would ascribe as among the causes of death the following: —

"Cancrum."
"Canker and spasms."
"Lack of vetallity."
"Lack of villality."
"Daeth barne."
"Canker humer."
"Swallowing."
"Lung diess." (Lung disease).
"Canther of the bowels."
"Scharletena."
"Chituses."

The "lung diess" turned out to be upon investigation lung disease.

To say that a person died of "canker and spasms," "snuffles" or "lack of villality," gives us but little knowledge of the true cause of death; while "lung diess" may, to those who understand its meaning, show the location but not the nature of the disease. Correct classification of diseases is difficult under such circumstances, and the city physician has been of great assistance to us in examining and determining the true cause of death in these and similar cases.

The question who is a physician within the meaning of Sect. 3 of Chap. 21 of the G. S., still comes back to us and

ought to be settled. Is every person, who holds himself or herself out as such, attending another in his last illness, a physician within the meaning of the statute? Are we to take the certificate of every *soi-disant* physician, and, upon that alone, give a permit for burial? Is he or she a physician who has no degree, no diploma, who has never studied medicine, who has had little or no experience, who cannot spell the name of a disease so that it can be read or understood, and who cannot write his or her name at all, but who simply makes a mark? If so, what weight shall we give to such certificates? Of what possible value are they? And if not, where shall we draw the line? Ought there not to be some legislative enactment defining "any physician," or fixing the qualifications he shall possess, who undertakes to give this important certificate?

In the present report the Board is able to present for the first time the results of a mortality registration conducted under its immediate supervision. The statistics given in the following pages embrace only a part of the facts which have been gathered in this important department of sanitary work during the past year. Very much more might have been added, but the purpose has been kept in view to present in this portion of the report those matters only which possess obvious interest and value for the general reader, extensive statistical tables and detailed facts, appropriate in a registration report, but less acceptable here, having been omitted. The Board is not unconscious of the fact that important elements are lacking, whose presence is needed for statistical accuracy. Chief among these is a correct knowledge of the population of various sections of the city, whereby mortality rates might be calculated satisfactorily with reference to age-distribution, nationality and parentage. Other shortcomings will, it is hoped, be found easy to correct in the future working of this department of the Board's functions.

The immense assistance which this mortality registration has afforded to the Board during the year in its endeavors to promote the sanitary welfare of the city can hardly be overestimated. Without delay or obstruction the direct return of deaths has placed the Board in a position to investigate, and in many instances to remove, conditions inimical to life and health. Preventable local causes of mortality have thus been repeatedly discovered, which else might have escaped detection, to work further mischief in homes already bereft. The desolating inroads of diphtheria, of scarlatina, of cholera infantum, and of other maladies included in the group of zymotic or filth diseases, have had in this manner

immediate recognition and, as far as lay in the power of the Board, energetic resistance. Without entering even an indirect claim that the diseases alluded to or any others are under the full control of sanitary authority, the Board feels confident that it has secured, in the registration of mortality, in the promptly reported information concerning the locality and causes of deaths, an immediately available and effective reinforcement in the prosecution of sanitary work.

It is to be remarked concerning the comparatively high death-rate of the city during the past year that it is open to a double interpretation. In the first place, it means, in accordance with common sense, that Boston is below the average as regards its public health, that imperfect sewerage and other conditions, remediable or inevitable, are impressing themselves upon our people in effects which are to be deplored. But, in the second place, lest there should be a temptation to exaggerate to a sensational degree the notion that Boston, judged by its death-rate, is an unfit place to visit, or to inhabit, it is further to be remarked that our relatively high rate of mortality means also that the registration of deaths is more accurate and complete than in cities which unduly exalt the estimated number of their inhabitants, while they fail to record the entire number of those who have died. This view of the case should not be lost sight of, when comparisons are made to the disparagement of Boston.

The whole number of deaths returned for the year ending April 30th, 1876, not including still-births, was 9,154.

This gives a death-rate of 26.77 per thousand of a population of 342,000.

If we include the still-births, of which there were 452, the whole number of deaths will be 9,606, and the death-rate 28.08 per thousand.

By Zymotics is meant those diseases which are due to contagion, filth, or miasma, and are known as preventable by, or amenable to, sanitary force. Small-pox, scarlatina, diphtheria, and typhoid fever are examples.

By Constitutional Disease is meant those not dependent upon influences coming from without, but are largely inherited. Consumption, cancer, and scrofula are examples.

In the class of Local Diseases are included affections of the various organs or groups of organs in the body, considered distinctively. Many of the inflammations illustrate this class, as, for example, pneumonia, pleurisy, and peritonitis.

Developmental Diseases are those which depend for their cause upon accidental or other interference with the nutrition or growth of the body. Premature birth, cyanosis, teething, old age and debility are examples.

Violent deaths are those arising from accident, suicide, homicide, or execution.

Of the total number of deaths, there were: —	
Born in the United States	6,729
Of foreign nativity	2,333
unknown nativity	92
Of native parentage	2,273
foreign parentage	5,316
mixed parentage, or known only in part	1,111
unknown parentage	454
Of those whose residence was elsewhere than in Boston	217
Unknown, or left blank	353
Given as "None"	252
Married	2,136
Single	6,108
Widows	605
Widowers	233
Unknown social relations	72

Table Showing the Parentage of those of all Ages who have Died of Consumption.

1875.	Native.	England.	Ireland.	Scotland.	Germany.	Nova Scotia.	Mixed.	Other foreign countries	Unknown.	Total.
May	23	4	60		5	1	13	9	3	118
June	14	3	67	2		5	4	2	6	103
July	22	2	63	1	4	3	6	2	3	106
August	21	6	56	5	5	2	6	2	6	109
September	29	1	57	1	2	5	10	2	4	111
October	27	4	82	1	1	4	12	7	2	140
November	17	2	54		3	2	4	3	5	90
December	29	1	62			2	2	2	5	103
January	22	4	75	2	7	4	4	1	6	125
February	26	5	57	1	4	3	4	5	6	111
March	26	3	49	2	1	4	4	6	6	101
April	43	12	65		3		4	5	12	144
	299	47	747	15	35	35	73	46	64	1361

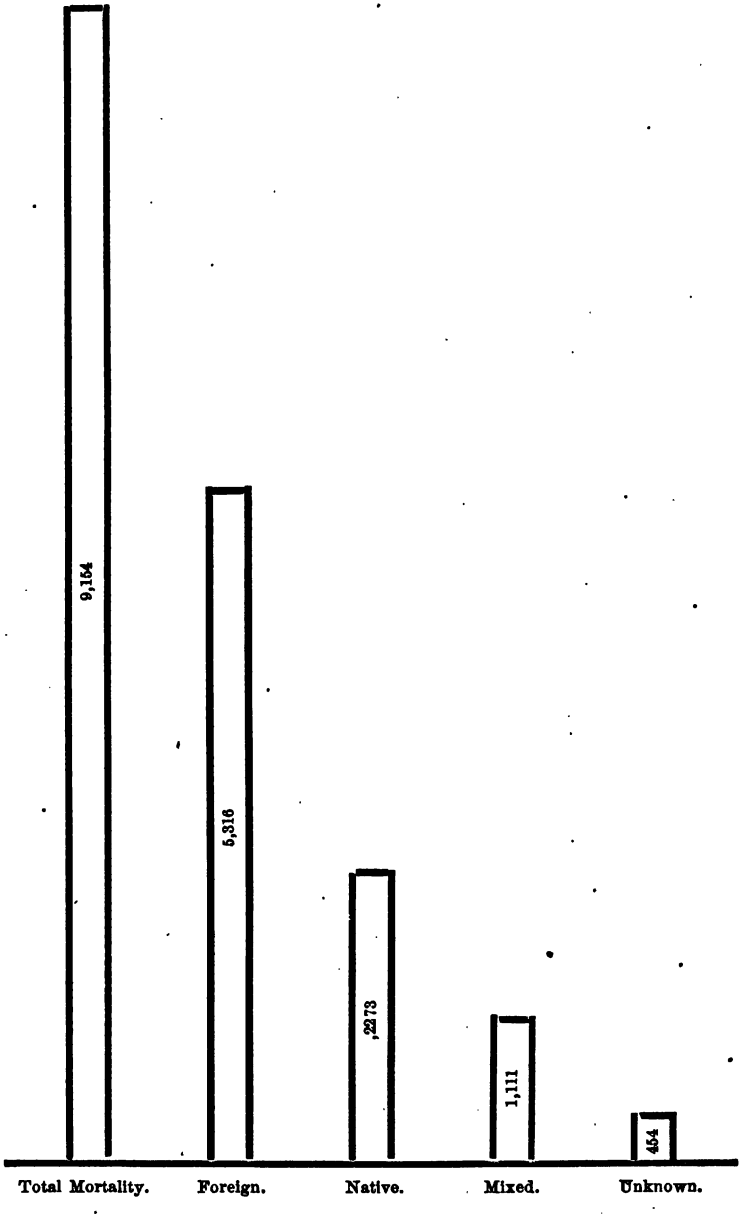


Diagram showing the relative proportion of deaths of foreign, native, and unknown parentage, and of parentage mixed or known only in part.

The Numbers and Percentages of Deaths of each Sex, from several Specified Causes, at different Specified Periods of Life.

SEX.	DIPHTHERIA.		DYSENTERY.		TYPHOID FEVER.		MEASLES.		SCARLATINA.		ERYSIPELAS		CROUP.		CHOLERA INFANTUM.		CONSUMPTION.		PNEUMONIA.	
	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.
Males	301	49.51	52	49.06	118	55.92	6	40.00	352	54.83	25	53.19	120	50.85	339	49.42	658	48.34	326	55.92
Females	307	50.49	54	50.94	93	44.08	9	60.00	290	45.17	22	46.81	116	49.15	348	50.58	703	51.66	257	44.08
Totals	608	100.00	106	100.00	211	100.00	15	100.00	642	100.00	47	100.00	236	100.00	687	100.00	1,361	100.00	583	100.00
AGES.																				
Under 5	389	63.98	42	39.62	8	3.79	10	66.67	458	71.34	18	38.29	191	80.93	687	100.00	84	6.17	222	38.08
5 to 10	166	27.30	8	7.55	17	8.06	4	26.67	152	23.68	.....	.....	44	18.64	.....	.....	18	1.32	17	2.92
10 to 20	33	5.43	6	5.66	53	25.12	.....	.....	25	3.88	2	4.27	.....	.....	.....	.....	124	9.11	16	2.74
20 to 30	9	1.48	5	4.72	60	12.79	.....	.....	5	.78	3	6.38	.....	.....	.....	.....	404	29.70	43	7.38
30 to 40	5	.82	12	11.32	27	28.44	1	6.66	1	.16	4	8.51	.....	.....	.....	.....	330	24.24	51	8.74
40 to 50	2	.33	3	2.83	24	11.38	.....	.....	.....	.....	4	8.51	1	.43	.....	.....	179	13.15	75	12.86
50 to 60	2	.33	6	5.66	10	4.74	.....	.....	1	.16	5	10.63	.....	.....	.....	.....	117	8.60	55	9.44
60 to 70	2	.33	14	13.21	7	3.31	.....	.....	.....	.....	5	10.63	.....	.....	.....	.....	73	5.36	58	9.95
70 to 80	.....	.....	8	7.55	5	2.37	.....	.....	.....	.....	6	12.78	.....	.....	.....	.....	26	1.91	31	5.32
Over 80	.....	.....	2	1.88	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	44	15	2.57
Total	608	100.00	106	100.00	211	100.00	15	100.00	642	100.00	47	100.00	236	100.00	687	100.00	1,361	100.00	583	100.00

Table

Showing the number and percentage of Deaths from the five classes of specified causes: distinguished according to Sex, Age and Season.

Sex.	Zymotic.		Constitutional.		Local.		Developmental.		Violent.		Not Specified.	
	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.
Males	1547	51.21	846	48.07	1486	52.18	522	46.19	266	75.57	24	55.81
Females ...	1474	48.79	914	5 1 3	1362	47.82	608	53.81	86	24.43	19	44.19
Totals ...	3021	100.00	1760	100.00	2848	100.00	1130	100.00	352	100.00	43	100.00
Ages.												
Under 5....	2052	67.92	238	13.52	989	34.73	778	68.85	66	18.75	22	51.16
5 to 10....	399	13.21	31	1.76	97	3.41	2	.18	25	7.10	1	2.33
10 to 20....	133	4.40	135	7.67	136	4.77	4	.35	25	7.10	4	9.30
20 to 30....	127	4.24	424	24.09	201	7.06	14	1.23	63	17.90	5	11.63
30 to 40....	108	3.57	350	19.89	218	7.65	20	1.77	56	15.91	2	4.65
40 to 50....	69	2.28	238	13.52	289	10.14	8	.71	44	12.50	....	.....
50 to 60....	44	1.45	160	9.09	291	10.22	5	.44	35	9.94	1	2.33
60 to 70....	54	1.78	115	6.53	302	10.60	20	1.77	26	7.39	4	9.30
70 to 80....	27	.89	52	2.96	247	8.68	133	11.77	7	1.99	4	9.30
Ocer 80....	8	.26	17	.97	78	2.74	146	12.92	5	1.42	....	.....
Totals ...	3021	100.00	1760	100.00	2848	100.00	1130	100.00	352	100.00	43	100.00
Months.												
May	130	4 30	151	8.58	262	9.20	85	7.52	33	9.38	5	11.63
June.....	149	4.93	162	9.20	194	6.81	87	7.70	45	12.78	5	11.63
July	388	12.84	146	8.30	164	5.76	101	8.94	37	10.51	1	2.33
August	498	16.48	139	7.90	218	7.65	126	11.15	24	6.82	4	9.30
September.	366	12.11	149	8.47	209	7.34	113	10.00	28	7.95	1	2.33
October ...	239	7.91	165	9.37	208	7.31	79	6.99	26	7.39	2	4.65
November .	243	8.05	129	7.33	234	8.22	90	7.96	25	7.10	2	4.65
December..	229	7.58	148	8.41	276	9.69	82	7.26	28	7.95	2	4.65
January ...	287	9.51	142	807	261	9.16	89	7.88	24	6.82	5	11.63
February ..	191	6.32	141	8.01	261	9.16	86	7.61	26	7.39	6	13.95
March	156	5.16	134	7.61	299	10.50	110	9.73	26	7.39	3	6.97
April.....	145	4.81	154	8.75	262	9.20	82	7.26	30	8.52	7	16.28
Totals ...	3021	100.00	1760	100.00	2848	100.00	1130	100 00	352	100.00	43	100.00

POLICE SURGEONS.

There are at present fifteen police station-houses within the city, and in the course of the year about 80,000 persons, for some cause, lodged for a longer or shorter time in these stations and under the court-house. Many of these persons, either from drunkenness or accident, require the services of a physician before they can be sent away to a hospital or elsewhere.

In 1863, when the city covered but a small portion of its present area, an ordinance was made, requiring the city physician, in addition to other duties, to do all the service required of a physician at the city prison under the court-house, and at the several police stations in the city proper. While this was quite impossible for him then to do, it is much less so now, with the present increased demand upon his time for other official duty. Practically, it has never been done, and can never be done, and secure the immediate attention which many of the accidents and other cases require.

The residence of the present City Physician happens to be near Station 4, and most of his official duty near Station 2. Many of the calls at these two stations are answered by him, but not all. The result has been that the nearest or most available physician has been called in, and in each case a separate and full charge is made. Last year the sum of $1,706.95 was paid by the police department for services thus rendered by the several physicians at police stations. The city thus pays exceptionally high for services; sometimes for a first-class physician, but sometimes to those whom the Council would not select for the position. We respectfully call the attention of the City Council to this important subject, and suggest the propriety of appointing, for a term of years, or during satisfactory service, a sufficient number of regularly graduated physicians, selected from those who live in the immediate vicinity of the stations to which they are appointed, and who shall receive a salary adequate to their services. In this way the most competent and honorable physicians can be obtained, direct responsibility secured, and one half of the present expense saved the city treasury.

DIPHTHERIA.

Diphtheria prevailed to so large an extent, and its cause and true character — its relation to or dependence upon contagion or insanitary surroundings — became a matter of so great interest that we thought best to institute examinations

in every case where death occurred, and, so far as practicable, in all cases where the disease was known to exist. Dr. F. W. Draper, one of our medical inspectors, was assigned this duty, and the preparation of a special paper on the subject. The work was pursued with diligence until nearly the close of the year, and much valuable material had been gathered when he was disabled by sickness, and the work suspended. We regret that his illness has prevented the publication of the result of his investigation in this report.

The number of deaths from this disease will be found on one of the tables which follow.

INFANT MORTALITY.

The large number of deaths of children under five years of age, of infantile diseases in years passed, seemed to us to require investigation, in order to discover, if possible, the cause. This duty was assigned to W. L. Richardson, M.D., one of our medical inspectors, whose report is hereto annexed.

MEDICAL COMMISSION.

The members of the Medical Commission appointed at the suggestion of His Honor the Mayor in 1874, to examine into the death-rate of the city, are entitled to great credit for their thorough investigation of the subject, and the valuable report which they submitted to us in November last.

CHEMICAL WORK.

The only work submitted to a chemist during the year was in the latter part of April, when complaint was made at this office that a certain kind of cooked corned beef had produced sickness in several families. Specimens of the meat were at once obtained, which were found to be packages of cooked meat rolled in a layer of cloth, and covered outside with tin foil.

Evidence was obtained which left no doubt but that the meat caused the illness, and the public was at once cautioned through the daily papers.

. . . . . .

Dr. E. S. Wood, Professor of Chemistry of Harvard University, was employed to examine the meat, and we make the following extracts from his report: —

. . . . . .

"In accordance with instructions received from you, I have examined specimens of the pressed beef which have caused several cases of poisoning in the City of Boston. . . . . Three specimens have been examined. The first two of these specimens were examined chemically, and the third was administered to a small dog, but without any result. The only result of a careful analysis of the first two specimens was the detection of a trace of lead in both of them. This was not sufficient to cause the serious symptoms which were caused by eating specimens of the beef, but might, if eaten for a sufficiently long period, cause chronic lead poison. The presence of lead in the beef can readily be explained by the tin foil (which contains lead) which is wrapped around the beef, although it is separated from it by a layer of cloth. In order to preserve the meat it is treated with brine, which saturates the cloth, and dissolves a portion of the lead from the tin-foil. When dissolved, it can readily permeate the cloth, and enter the meat in small amounts. It occurred to me that a large excess of saltpetre, used in curing the meat, might have caused the symptoms, which were those of an irritant poison; but a quantitive estimation proved this hypothesis to be a false one, — a pound of the meat containing less than fifty grains of saltpetre, an amount insufficient to produce such serious symptoms. The symptoms, so far as I have been able to learn, are principally vomiting, purging, and extreme prostration. These symptoms are entirely consistent with, and, in fact, exactly similar to those which are produced by eating unsound meat; and this is the probable explanation of its injurious action, since only one of the specimens which I received preserved its fresh odor more than twenty-four hours, an odor of putrefaction being plainly perceptible after that lapse of time, although it was kept in a cool place. This decomposition was probably started before the meat was packed. The practice of placing tin-foil about preserved meats should be reprimanded, since a certain amount of the lead is dissolved."

We referred last year to the efforts then being made by some philanthropic people to save, if possible, the lives of many children who might fall victims to the various so-called "summer diseases." A house was established on the seashore (Beverly), and the results reported by the officers of the institution fully meet the expectations of those who planned and carried out the enterprise.

Our acknowledgments are again due to Dr. Geo. H. Rohé, of the U. S. Signal Service, for furnishing us with daily reports of meteorological observations during the past year, and for the courtesy and promptness with which he has at all times responded when called upon for information.

"In ac
specimen
poisoning
been exa
chemical
any resul
mens wa
not suffi
eating sp
period, ca
readily b
wrapped
cloth. It
saturates
When dis
in small
used in c
those of
hypothesi
fifty grain
symptoms
principall
toms are
which are
explanati
which I r
an onor c
time, alth
probably
tin-foil ab
amount of

We re
some phi
many chi
"summer
shore (B
the insti
planned a

Our ac
Rohé, of
daily repo
year, and
at all time

"In ac
specimen
poisoning
been exa
chemicall
any resul
mens wa
not suffic
eating sp
period, ca
readily b
wrapped
cloth. It
saturates
When dis
in small
used in c
those of
hypothesi
fifty grain
symptoms
principall
toms are
which are
explanati
which I re
an odor c
time, alth
probably
tin-foil ab
amount of

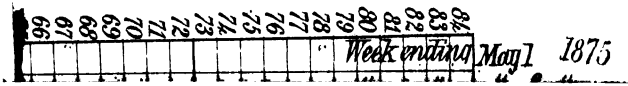
We re
some ph
many chi
"summe
shore (B
the insti
planned

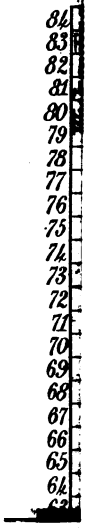
Our a
Rohé, of
daily rep
year, and
at all tim

"
spec
pois
been
chen
any
men
not
eatin
perio
read
wrap
cloth
satu
Whe
in sn
used
those
hypo
fifty
symp
princ
toms
whic
expla
whic
an o
time,
prob
tin-fo
amou

W
some
many
"sun
shor
the
plan

Ou
Rohé
daily
year,
at all


66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84
Week ending May 1 1875



spe
pol
bee
che
any
me
not
eat
per
rea
wri
clo
sat
Wh
in s
use
tho
hyp
fift
syn
pri
tom
whi
exp
whi
an
tim
pro
tin-
am

son
mai
"su
sho
the
pla

C
Rok
dail
yea
at a

The following is a statement of the expenses and income of this department during the year: —

Board of Health	$12,000 00	
Clerk-hire	3,791 67	
Inspectors of Nuisances	11,425 00	
Horse and vehicle, Board of Health	684 76	
Stationery	264 52	
Printing	2,591 23	
Advertising	202 39	
		$30,959 57
Abatement of nuisances		17,394 30
Small-pox		2,313 19
Public urinals		5,360 54
Building new urinals		3,640 12
Burial grounds		4,858 60
City Physician and Assistant		4,750 00
Inspector of Provisions		2,000 00
Evergreen Cemetery		3,127 48
Drinking fountains		490 00
Horse and vehicle, City Physician		519 88
Contingencies		2,150 20
Removal of night soil, (clerk-hire)		1,200 00
Total expended		$78,763 88

INCOME.

Abatement of nuisances		$2,107 94	
Licenses		120 00	
Seized meat		11 29	
Small-pox, Commonwealth of Massachusetts	$690 97		
Small-pox, Watertown	39 71		
		730 68	
Evergreen Cemetery		1,456 50	
			$4,426 41

QUARANTINE DEPARTMENT.

Port Physician and Assistant	$1,900 00
Subsistence for assistant	275 00

Gallop's Island.

Salaries, Superintendent and Assistants,	$1,542 96	
Subsistence	1,107 62	
Fuel	225 00	
Supplies	589 38	
Repairs and grading	459 82	
Medicines	13 71	
Other expenses	313 93	
		$4,252 42

Steamer "Samuel Little."

Salaries, captain and crew	$3,895 00	
Subsistence	774 63	
Fuel	1,277 99	
Water-rates	100 00	
Repairs, painting, etc.	1,502 68	
Other expenses	178 01	
		$7,728 31
Stationery		13 04
Printing		24 37
Advertising		20 62
		$14,213 76

Recapitulation.

Amount appropriated by City Council	$18,700 00
Expended	14,213 76
Transferred to "Sinking Fund"	$4,486 24

Income:—

Fees received from vessels, paid to City Treasurer	$3,063 00
For Board of patients	40 00
Old iron and vegetables	47 80
Total	$3,150 80

RECAPITULATION.

Appropriated: —		
Board of Health . .	$92,000 00	
Evergreen Cemetery .	1,000 00	
Quarantine Department .	18,700 00	
		$111,700 00
Expended: —		
Board of Health . .	$75,636 40	
Evergreen Cemetery .	3,127 48	
Quarantine Department .	14,213 76	
		$92,977 64
Unexpended		$18,722 36
Income: —		
Board of Health . .	$2,969 91	
Evergreen Cemetery .	1,456 50	
Quarantine Department .	3,150 80	
		$7,577 21
		$26,299 57

ALONZO W. BOARDMAN, *Chairman.*
SAMUEL H. DURGIN, M. D.
HENRY G. CROWELL.

REPORT OF THE CITY PHYSICIAN.

SAMUEL A. GREEN, M. D.

REPORT OF THE CITY PHYSICIAN.

CITY PHYSICIAN'S OFFICE,
May 1, 1876.

To the Board of Health : —

GENTLEMEN, — I have the honor to submit the following report of this office, for the year ending April 30.

There have been 931 persons vaccinated, of which number 6 were persons revaccinated. Certificates of vaccination have been given to 237 children for their admission into the public schools. Vaccine virus has been furnished to 26 physicians, who were residents of the city. Visits have been made to the jail daily, or oftener, as the occasion required, and 1,683 prisoners have been examined for complaints, real or feigned. The sick at the City Prison, and at the Temporary Home, have been seen whenever it was necessary. At the latter place 305 women and children have been treated for various ailments, and 4 deaths have occured. There have been 6 cases of childbirth at the Home during the year. I have made, at different police stations, 174 visits, to see prisoners and others who required medical attendance. These for the most part have been surgical cases, and have occurred generally in the night-time. There have been examined 96 policemen, at the request of the Chief of Police, to see if they were physically qualified to perform the duties of their office, and there have been examined, under a similar request from the Fire Commissioners, 66 firemen, for the same object.

I have seen also, during the year, 356 bodies of persons who have died without a physician in attendance during their last illness. These cases comprise principally those who die from chronic disease, where there has been no medical care for months before death, and those who die suddenly. They include, also, those who die at birth, or soon after, with no physician to make the necessary returns. In such instances a careful examination is made, the symptons learned, and a diagnosis reached sufficient for all practical purposes. The law requires a medical certificate of death before a permit is granted to bury a body; and these examinations are made to conform with the law, as well as to collect the statistics for the bills of mortality.

There have been under my care at the Marcella-street Hospital, before it was given up by your Board as a hospital, 3 cases of small-pox, which all recovered. Each one of these persons had been previously vaccinated. There is not at the present time a single case of this loathsome disease within the limits of the city.

In conclusion, I desire to acknowledge the courtesy and kindness that I have always received from the members of your Board, which have largely lightened the labors of my office; and I also wish to acknowledge the faithful services of my assistant, Dr. John H. McCollom.

Very respectfully, your obedient servant,

SAMUEL A. GREEN, M. D.,
City Physician.

REPORT OF THE PORT PHYSICIAN.

ALONZO S. WALLACE, M. D.

REPORT OF THE PORT PHYSICIAN.

To the Board of Health: —

Gentlemen,— The annual report of the Port Physician for the year ending April 30th, 1876, is herewith respectfully submitted.

Five hundred and four vessels have been examined and passed. Of this number, two have been quarantined on account of yellow fever, viz.: The schooner "N. J. Miller," arriving September 7th, from San Domingo, and the brig "Elba," arriving December 17th, from Havana.

The following is a classification of the vessels and fees collected on same: —

Steamers,	41	$8 00	$328 00
Ships,	21	8 00	168 00
Barks,	119	8 00	952 00
Brigs,	145	5 00	725 00
Schooners,	177	5 00	885 00
Sloop,	1	5 00	5 00
Total,	504		

There have been collected for board of patients from vessels	40 00
For old iron and vegetables	47 80
Total amount collected	$3,150 80

which amount has been paid to the City Treasurer.

There have been admitted to Gallop's Island Hospital during the year, twenty-five patients, as follows: from vessels, three cases of yellow fever; from the city, four cases of small-pox, and eighteen regarded as infected persons and dangerous to the public health, having been exposed to small-pox.

The cases of yellow fever fully recovered and were discharged, having been detained about two weeks.

Of the four cases of small-pox, three recovered, the other resulting fatally.

The remaining eighteen having been detained a sufficient length of time, and no disease having appeared, were thoroughly cleansed and discharged.

With the exception of the above-mentioned cases, the Island has been entirely free from sickness since May 28th, 1873.

The comparative freedom of the Island, for the past two or three years, from disease, has given a good opportunity for the development of the land and improvement of the buildings. New buildings have taken the place of old, worthless ones, and nearly all the land has been brought into a fair state of cultivation.

The following is a list of the principal articles of produce and the quantity grown: —

Potatoes	250	bushels.
Onions	45	"
Beets, including mangolds	208	"
Oats	35	"
Turnips	10	"
Cabbage	100	heads.
Squashes	130	"
Pumpkins	50	"
Hay	10	tons.

Table vegetables, such as string-beans, green corn, green peas, lettuce, etc., of which no account has been made, were grown in quantities to liberally supply the wants at the Island and on the steamer "Samuel Little."

The dairy has furnished all the milk used on the Island and steamer; and has made nearly butter enough to supply the Island for the year.

The stock on the Island consists of one horse, two oxen, two cows, and a heifer.

Among the improvements of the year may be mentioned the digging out and bricking up under the barn, making a very convenient barn cellar.

The grading, also, has added greatly to the general good appearance of the Island.

A very neat and substantial building, 35 feet by 18, has just been completed by the overseer, Capt. Ranlett. This building furnished us with very convenient and much-needed carpenter, blacksmith, and paint shops.

The steamer "Samuel Little" has run for the year without

any extensive repairs; and we consider her good for the ensuing year.

Captain W. H. Sampson, who has filled well the position of commander of the above-named steamer for the past two years, resigned April 15th, 1876. Captain G. T. Ranlett, a former commander, has been appointed his successor.

We are indebted to Col. J. C. Whiton, Superintendent of the Deer Island Institutions, for many favors granted during the year.

Dr. C. Irving Fisher, to whom I have been under pleasant obligation since my connection with the department, resigned the office of Port Physician, September 15th, 1875, to enter private practice. He carried with him the highest regards and best wishes of the officers of this department.

Dr. Thomas Kittredge was appointed Assistant Port Physician, September 15th, 1875. It is sufficient to say that his previous experience in the department warrants his efficiency in the future.

It gives me pleasure, in submitting this report, to acknowledge my indebtedness to those with whom I have been associated in the discharge of my duties; and to thank them for their faithful co-operation; and especially to you, gentlemen, for your counsel and recognition at all times.

Very respectfully,

ALONZO S. WALLACE, M. D.,
Port Physician.

APRIL 30th, 1876.

INFANT MORTALITY.

BY W. L. RICHARDSON, M. D.

tics of
rest to
ms at
here is
found
erved
onsid-
obsta-
h the
n can
evail-
city
other
gienic
tality
xcep-

buted
e, all
act is
pro-
least
nit of
ions.
, to a
ithin
hem-
ishes
s by

e the
just
t the
ible,

tistics of
terest to
blems at
there is
is found
observed
consid-
y obsta-
with the
lren can
prevail-
one city
another
hygienic
ortality
exceptributed
one, all
e fact is
to pro-
at least
dmit of
lations.
are, to a
within
l them-
anishes
ods by

ine the
as just
hat the
ossible,

INFANT MORTALITY.

BY W. L. RICHARDSON, M. D.

A careful examination and study of the vital statistics of any large city or town reveal many facts of great interest to the statistician, and present for solution many problems at once perplexing and difficult. Among these facts there is none more startling than the high death-rate which is found to prevail among children, in comparison to that observed among adults, and no problem deserves so careful consideration, while, at the same time, it presents so many obstacles in the way of a solution, as that which deals with the methods by which this high death-rate among children can be reduced. The fact observed is a universal one, prevailing in all communities alike. The death-rate in one city may, it is true, be much lower or higher than that in another differently situated, and subject to better or worse hygienic influences; but the relative rate noticed between the mortality of children and adults will be found, with scarcely an exception, to be nearly the same all over the world.

That this high death-rate among children is to be attributed to many different causes rather than to any single one, all who have studied the subject agree. Moreover, the fact is now clearly recognized that of the factors which tend to produce this excessive mortality among children, some at least are to be classed as preventable, and nearly all will admit of improvement by the adoption of proper sanitary regulations. The statement that the rise and fall of the death-rate are, to a certain, and, in many cases, a very marked degree, within our control, is agreed upon by all who have interested themselves in the subject; but this unanimity of opinion vanishes as soon as the discussion turns upon the best methods by which the proposed reform is to be brought about.

The object of the present paper is, first, to examine the infant mortality of the city during the year that has just ended (April 30, 1876); second, to ascertain to what the excessive death-rate is due; and, third, to devise, if possible, some means of improvement in the future.

By a general usage, the term infant mortality has come to denote the mortality of those of five years of age and under. This, therefore, is the meaning of the title of the paper, and of the expression as it occurs in the following pages.

For the facts relating to the number of inhabitants of the city and of its various sections, and the proportion of infants to adults, I am under great obligations to Col. Carroll D. Wright, Chief of the Bureau of Statistics of Labor, who has kindly given me most valuable information whenever I have applied to him for it. The meteorological observations are these furnished to the Board of Health by Dr. George H. Rohé of the U. S. Signal Service.

At the request of his Honor Mayor Cobb, a medical commission was appointed, October 15, 1874, to examine into the sanitary condition of Boston. In their report, submitted to the Board of Health, under date of November 1, 1875, Dr. Thomas B. Curtis (the Secretary of the Commission) discussed at length the question of the supposed excessive infant mortality of the city, and those especially interested in the subject are referred to that report for much valuable material bearing directly upon the statistical and scientific side of this important question. The object of the present paper is to present, in a somewhat popular form, certain facts which may throw some light upon the causes of this high death-rate, while, at the same time, it suggests measures by the adoption of which, it is to be hoped, the lives of many, now annually sacrificed, may be saved.

I. INFANT MORTALITY IN BOSTON DURING THE YEAR ENDING APRIL 30, 1876.

According to the census which has been lately taken (July, 1875), the number of inhabitants of Boston is 341,919. Of this number, 43,936 are five years of age and under. During the year ending April 30, 1876, the number of deaths which occurred was 9,154, and of this number, 4,167 were reported among children of five years of age and under. It will thus be seen that, while the death-rate of those over five years of age was 16.73 per thousand, the high rate of 94.84 per thousand obtained among infants.

The following table contains the names of the various diseases which have terminated fatally during the year, with the number of deaths reported from each: —

TABLE I.

Causes of Death of all of Five Years of Age and under.

Abscess	6	Dysentery	43	Marasmus	342
Accident	56	Dyspepsia	2	Measles	11
Apnœa	3	Eczema	3	Meningitis	212
Ascites	1	Embolism	2	Noma	1
Asphyxia	4	Enteritis	11	Œdema of Lungs	1
Asthma	2	Entero-colitis	13	Paralysis	5
Bronchitis	162	Epilepsy	3	Peritonitis	8
Cancer	1	Erysipelas	20	Pleuritis	1
Canker	4	Exhaustion	6	Pneumonia	230
Cholera Infantum	687	Febricula	4	Premature Birth	141
Colic	4	Fever Catarrhal	1	Purpura	4
Congestion of Lungs	45	" Scarlet	467	Purpura Hæmorrhagica.	2
Consumption	71	" Typhoid	9	Rheumatism	1
Convulsions	171	Gastritis	4	Scrofula	12
Coryza	1	Gastro-enteritis	16	Septicœmia	2
Coxitis	1	Hæmorrhage	3	Stomatitis	2
Croup	204	Hernia	2	Syphilis	18
Debility	88	Hydrothorax	1	Tetanus	5
Dentition	59	Imperfect Development	69	Thrush	1
Diarrhœa	147	Inanition	52	Tonsilitis	3
Difficult Birth	13	Inflammation of Bowels.	17	Tuberculosis	9
Diphtheria	405	Inflammation of Eye	1	Unknown	26
Disease of Brain	166	Influenza	2	Whooping Cough	26
Disease of Heart	8	Intestinal Obstruction	6		—
Disease of Kidney	7	Laryngitis	11		4,167
Disease of Liver	14	Malignant Sore Throat	6		

The causes of death in the preceding table are taken from the death-certificates returned to the Board of Health, and are given here, not with the belief that they are strictly correct, but because, to a certain extent, they give the general character of the diseases which proved most fatal to young children. It is certainly questionable whether dentition, ascites, canker, colic, coryza, and many other diseases, the names of which appear in the above list, should ever be considered, *per se*, as a cause of death.

At present there exists in Massachusetts no proper system of medical registration, and it is therefore impossible to obtain any statistics bearing upon the causes and frequency

of disease, which can be depended upon to any great extent. It may not be out of place here to express the hope that the day is not far distant when some additional legislation shall at least prescribe what is meant by the term "any physician," as used in the law now governing this whole subject of death-certificates.

An examination of these various causes will show that, for the purposes of discussion, they readily admit of classification, as follows: —

TABLE II.

Table of Classified Diseases with the Number of Decedents from each Class.

CLASSIFICATION OF THE CAUSES OF DEATH.	Number of Deaths.	Per cent. of the whole number.
1. Diseases of the digestive system	944	22.65
2. Diseases of the respiratory system	738	17.72
3. Diseases of the brain and nervous system	562	13.48
4. Debility, exhaustion, inanition and marasmus	547	13.13
5. Measles, scarlet fever and whooping-cough	504	12.10
6. Diphtheria	405	9.72
7. Premature or difficult birth and imperfect development	223	5.35
8. Accident	56	1.35
9. Scrofula, syphilis and tuberculosis	35	.83
10. All other causes	153	3.67
Total	4,167	100.00

From the following table it will be seen that the liability to death in early life decreases with age, and that the death-rate, with an occasional accidental exception, falls steadily from 792.24 per thousand, which obtained among infants of one month of age and under, to 32.22 per thousand, which was the death-rate of those between four and five years of age.

TABLE III.

Table of Ages at which the Deaths of those of Five Years of Age, and under, occurred.

AGES.	Number of Living Children.	Number of Deaths.	Death-rates per 1,000.
1 month and under	799	633	792.24
1 month to 2 months and under . .	788	273	346.69
2 months to 3 " " . .	886	192	216.70
3 " 4 " " . .	760	150	197.36
4 " 5 " " . .	712	163	228.93
5 " 6 " " . .	876	154	175.79
6 " 7 " " . .	760	143	188.94
7 " 8 " " . .	753	129	171.31
8 " 12 " " . .	7,657	514	67.12
1 year to 2 years " . .	8,498	835	98.25
2 years to 3 years " . .	7,626	429	56.25
3 " 4 " " . .	6,941	330	47.54
4 " 5 " " . .	6,885	222	32.22
5 years and under	43,936	4,167	94.84

The following table shows the parentage of those of five years and under, and, for the sake of comparison, the parentage is also given of those over five years of age who have died.

TABLE IV.

Table of Parentage of Infant and Adult Decedents.

	INFANT MORTALITY.		ADULT MORTALITY.	
	Number.	Percentage.	Number.	Percentage.
Number of Foreign Parentage.	2,386	57.24	2,938	58.91
" American "	921	22.11	1,355	27.17
" Mixed "	784	18.82	330	6.62
" Unknown "	76	1.83	364	7.30
	4,167	100.00	4,987	100.00

From these figures it will be seen that only 921 (22.11 per cent.) of the children who died were of native parentage,

while 3,246 (77.89 per cent.) were either of foreign, mixed or unknown parentage. It will be noticed, also, that very nearly the same ratio exists between the number of native adults who died, and the whole number of adult deaths.

The following table gives the percentage of the children who died from those diseases which contribute most largely to the sum total of the infant mortality of the city.

TABLE V.

Table showing Number and Parentage of Decedents from certain Diseases.

DISEASES.	Native Parentage.	Foreign Parentage.	Mixed Parentage.	Unknown Parentage.	Total.
Bronchitis	26	117	16	3	162
Cholera Infantum .	165	409	106	7	687
Consumption . . .	13	43	14	1	71
Croup	24	151	29	.	204
Diarrhœa	29	77	36	5	147
Diphtheria	113	238	52	2	405
Diseases of Brain .	33	81	34	1	149
Dysentery	9	28	6	.	43
Marasmus	53	121	141	27	342
Meningitis	40	142	29	1	212
Pneumonia	57	143	26	4	230
Premature birth .	41	58	39	3	141
Scarlatina	93	305	68	1	467
Typhoid Fever . .	.	8	1	.	9
	696	1,921	597	55	3,269

The following table exhibits the total monthly infant mortality, with the infant death-rate of the city, and the parentage of those who died each month.

TABLE VI.

Table showing monthly Mortality with the Parentage of Decedent.

MONTHS.	Foreign Parentage.	Native Parentage.	Mixed Parentage.	Unknown.	Total.	Percentage.	Death-rate per 1,000 living.
May	132	45	61	8	246	5.90	5.60
June	155	51	60	4	270	6.48	6.15
July	300	87	73	10	470	11.27	10.70
August	332	141	111	8	592	14.20	13.47
September	298	94	81	4	477	11.44	10.86
October	198	64	50	2	314	7.53	7.15
November	163	67	56	2	288	6.91	6.55
December	177	77	74	.	328	7.91	7.47
January	183	85	56	7	331	7.94	7.53
February	171	64	51	4	290	6.96	6.60
March	138	72	66	15	291	6.98	6.62
April	139	74	45	12	270	6.48	6.14
Totals	2,386	921	784	76	4,167	100.00	94.84

For the purpose of ascertaining to what extent the death rate was affected by local influences, thirteen different sections of the city were selected, in which the inhabitants were living under more or less widely differing conditions. In some, the population was thickly crowded together, as in Districts XII. and XIII., while exactly the opposite was the case in Districts I. and VI. In some the foreign element largely predominated, as in Districts VIII. and XI., while in Districts I. and VI. the native population far exceeded in number that of foreign extraction. Several of the outlying rural sections of the city were also selected, as furnishing a fair field for comparison with those districts which lay within the limits of the city proper.

The following were the boundaries of the districts selected:

District I. Bounded by Cambridge, Charles, Beacon, Arlington streets, Commonwealth avenue, Berkeley street, Warren avenue, West Newton, Clarendon streets, Boston and Albany Railroad track, Brookline avenue to the creek, and thence by a curved line running along the Brookline line to the Charles river.

District II. That section of the city known as West Roxbury.

District III. That section of the city known as Dorchester.

District IV. Bounded by a line beginning at a point in the Navy Yard wall, opposite the foot of Mount Vernon street, and running through the centre of Adams and Winthrop streets, and the street on the westerly side of Monument square, High and Pearl streets, to the centre of Medford street; thence through the centre of Medford street to a point opposite the dividing line of Brooks' wharf and the City wharf; thence by said dividing line to the Mystic river.

District V. Bounded by a line beginning at the Mystic river at the dividing line of Brooks' wharf and the City wharf, and running by this dividing line straight to the centre of Medford street; thence through Medford, Pearl, Salem, and Williams streets, and straight to Miller's river.

District VI. Bounded by West Brookline, Washington, Ball and Hammond streets, Providence Railroad track, West Newton street and Warren avenue.

District VII. Bounded by a line running from the Navy Yard wall, opposite Mount Vernon street, through Adams and Winthrop streets, along the westerly side of Monument square, and through High, Salem and Williams streets to Miller's river.

District VIII. Bounded by a line beginning at the corner of Boylston and Carver streets, and running through Boylston, Washington, Beach, Albany and Curve streets, Harrison avenue, and Indiana, Washington, Pleasant and Carver streets.

District IX. That section of the city known as East Boston.

District X. That section of the city known as Brighton.

District XI. Bounded by a line running from the South Bay through Dover street, Harrison Avenue, Curve, Albany, Beach and Federal streets, and through Mount Washington avenue to the water.

District XII. That section of the city known as South Boston.

District XIII. Bounded by a line running from the Charles river, at Warren bridge, through Causeway, Haverhill, Blackstone and Clinton streets to the water.

District XIV. That section of the city known as Dorchester. The following table gives the number of deaths occurring in these various sections of the city, with the death-rate of the different localities: —

TABLE VII.

Table of Deaths according to Location.

DISTRICTS.	LOCALITIES.	No. of living children five years of age and under.	Number of Deaths.	Death-rate per 1,000 living.
I.	Comprises a large part of the made land in old Wards VI. and IX.	727	27	37.13
II.	West Roxbury	1,704	71	41.66
III.	Dorchester, exclusive of the St. Mary's Infant Asylum	2,108	90	42.59
IV.	Old Ward XXI.	1,574	93	59.08
V.	Old Ward XXII.	1,559	82	59.14
VI.	The larger part of Old Ward XI.	1,021	66	64.64
VII.	Old Ward XX.	1,184	97	81.92
VIII.	Old Ward VIII.	969	82	84.62
IX.	East Boston	4,007	358	89.34
X.	Brighton	926	84	90.71
XI.	That part of Old Ward VII. lying in Boston proper	1,118	102	91.23
XII.	South Boston	8,049	773	96.03
XIII.	Old Ward II.	3,661	352	96.14
XIV.	Dorchester	2,158	348	161.26

From these various tables, which, with certain slight variations, are very similar to those of previous years, several facts seem well established as bearing more or less directly upon the general subject of infant mortality.

First. Those who die at the age of five years and under are vastly in excess of those who die after passing that period of life, the death-rate of the former class being 94.84 per thousand, while that of the latter is only 16.73.

Second. [Table III.] The death-rate constantly decreases with age. Thus while the death-rate of those, who died at the age of one month and under, was 792.24 per thousand, this excessive rate gradually fell until it was only 32.22 per thousand of all between four and five years of age.

Third. [Table IV.] This high death-rate is to be found chiefly among the children of foreign parentage; thus only 22.11 per cent. of all the deaths referred to occurred among children of American parents, while 76.06 per cent. occurred among the children of foreign or of mixed parentage. The parentage of 1.83 per cent. was unknown.

Fourth. [Table VI.] As regards the seasons of the year it will be noticed that there is a semi-annual wave of increase in the death-rate; an increase which is very marked during the summer months, and which, while not so striking, is yet found to be constant during the winter months.

Fifth. [Table VII.] The death-rate varies greatly in different sections of the city; thus, in that large area of made land, which lies mainly west of Charles street and Columbus avenue, the death-rate was as low as 37.13 per thousand living, while the high rate of 96.14 was found in the immediate vicinity of Hanover and Commercial streets.

This variation seems to depend largely on the character of those living within the various boundary lines, and on the conditions under which they live, rather than on any local causes. The more crowded the population the higher the death-rate. A rise and fall in the mortality percentage will also be seen to correspond to the wealth and poverty, the education and ignorance, of those living in the various sections of the city, which have thus been purposely selected, as affording marked contrasts in the character and social standing of the population.

Sixth. More than one half of the infant mortality of the city is due to so-called preventable causes. Thus, there can be no question that the causes of the large mortality which is ascribed to debility, exhaustion, inanition, and marasmus, as well as that which is annually classed under the head of diseases of the respiratory and digestive system, are due largely to ignorance, poverty and filth. This statement is strengthened by the fact that all these causes of death are found to exist to a far greater extent among the poorer and the foreign classes than among those in more comfortable circumstances and of native parentage.

II. CAUSES OF INFANT MORTALITY.

Passing now from an examination of the statistics relating to the infant mortality in Boston during the year which has just ended, we proceed to the second part of our subject, which relates to the causes which tend to produce this high death-rate among children of five years of age and under.

Taking up first the diseases which contribute most largely to the infant mortality of the city, let us consider what are the causes of their prevalence and severity.

Diarrhœal Diseases. — Nearly a fourth of all who die at five years of age, and under, die from some disturbance of the digestive system, as shown by a loss of appetite, a more or

less well-marked febrile reaction, restlessness, vomiting, diarrhœa, and collapse. On the death certificates various diseases, such as cholera infantum, diarrhœa, dysentery, enteritis, entero-colitis, gastritis, gastro-enteritis, appear as the ascribed cause of death. The name given for registration in the majority of cases is of little importance, especially when the medical character of the physician is taken in question. Certain facts in relation to the prevalence of this class of infantile diseases are worthy of mention. With very few exceptions, death from these causes takes place between the first of June and the middle of October. There can be but little question that, whatever names may be given to the various diseases which are characterized by nearly the same group of symptoms, they all owe their origin to certain definite causes, acting with greater or less severity, and that the resulting disease takes its special form, either from the degree of force with which those causes act, or the peculiar constitution of the individual patient upon which they are acting. These diseases are confined, for the most part, to cities and large towns; they are rarely found prevailing to any great extent in the country. Their appearance is always preceded by a marked increase in the temperature, and the early autumn frost is followed by their speedy departure. Their ravages are mostly confined to the crowded portions of the city, and the children of the poor and the ignorant go largely to make up the crowd of their victims. The younger the patient the more fatal is the disease apt to be.

What are the causes of the annual outbreaks of this class of diseases?

As is well known a baby has but few wants, but they are absolutely necessary for its very existence. These are fresh air, suitable diet, cleanliness, and proper clothing.

Fresh Air. — Owing to the delicate organization of the young child, any deleterious influences exerted by a poisoned atmosphere will, of course, be more quickly felt by it than they would be by an adult. The poisonous emanations from a defective sewerage; the escape of sewer-gases into dwelling-houses, owing to imperfect traps; the too close proximity of a filthy vault or privy; the tolerance of human excrement within occupied rooms; the keeping of animal or vegetable refuse matter in unsuitable receptacles within dwelling-houses, are all sources of contamination, by which the air surrounding the child is more or less poisoned. To a great extent these causes of disease are preventable. A rigid and frequent inspection of tenement-houses can do much towards removing many of the causes of the air-poisoning to which the young are so apt to fall victims. By this inspection any

overcrowding of these tenements can be prevented, and the owners compelled to see that the premises are kept clean, and, so far as is possible, considering the character of the tenants, free from all foul and offensive odors.

Recognizing the importance of securing a proper supply of fresh air to those who were attacked, or were threatened with attacks of diarrhœal diseases, in the summer, an organization was formed in Boston, last spring (May 27, 1875), for the purpose of providing these poor children with that of which they stood in so much need, namely, pure, fresh air.

We cannot better give the results of the experiment than by publishing the following extract from a letter received from Dr. James B. Ayer, who was the resident physician, during last summer, at the so-called Sea Shore Home, at Beverly: —

DEAR DR., — In reply to your inquiries regarding the benefits received by young children from pure air and proper nourishment, I will mention my experience at the "Beverly Farms Sea Shore Home."

Last summer a house was rented at Beverly Farms, near the seacoast, where 133 children, sent from the different Dispensary Districts of our city, were cared for. Nearly one-half of this number were under two years of age.

Most of the children suffered from acute intestinal disorders, or from debility either following disease, or directly traceable to crowded tenements, scanty food, and neglect.

Of these children 93 were discharged well; 25 relieved; 13 not relieved, and 2 died. Several of those discharged well were dangerously ill when admitted, and I believe would have had little chance of recovery if they had not been removed from home. The benefit to the little patients from change of air was very marked, and showed itself very early.

In spite of a fatiguing journey of 20 miles by rail, a large proportion of the children began to show signs of improvement a few hours after their arrival. The children were kept in the open air as much as possible.

The general health of the children suffering from pulmonary complaints was improved by their stay at the Home, although the air was too bracing for them, and an inland resort would have benefited them still more.

A careful regulation of the diet was held to be of the utmost importance for the successful treatment. Very few of the mothers were able to nurse their children, and nearly every child under my care, less than two years of age, was fed exclusively on cow's milk. After repeated trials I became convinced that this was the best substitute for mother's milk. Large cans of pure milk were left at the Home every morning. After standing an hour the upper quarter was poured off, and reserved for the babies. This was boiled and diluted with one to five times as much water, according to the age of the child, and condition of the digestive organs. In most of the cases, lime-water was added to the milk. Great care was taken to prevent the milk from becoming sour.

The nursing-bottles were provided with plain rubber nipples, without any glass tubing. As soon as the child finished nursing, the bottle was emptied, and both bottle and nipple placed in a bowl of pure water. It was found difficult to teach the mothers to give their children nourishment at regular intervals, and not too frequently. . . . .

Very truly yours,

JAMES B. AYER.

In the Report of the Executive Committee, published a few months since, the attention of all interested in the health of the children of Boston was called to the marked success which had followed this experiment. The hope was also expressed that, in the coming year, many other such retreats might be thrown open to the suffering children of the poor.

There can be no question but that any effort, however trifling in itself, which provides the pure, fresh air to those whose lot is cast in the close, heated, and filthy homes of the city, is a work the magnitude of which cannot be estimated by those whose limited vision will not allow them to foresee the future history of some whose lives, otherwise destined to be lost, are thus saved to the world.

Suitable Diet. — The proper food for the infant during the early months of its life is unquestionably pure milk. Any one, who has been brought into close contact with the children of the poor, knows that with them pure cow's milk even is not a common article of diet. When the mother is physically able to nurse her own offspring, and the requirements of her daily work allow her to do so, the baby for a time stands a chance, at least, of obtaining a fair share of its natural food. Even under such circumstances, however, ignorance and custom combine to render the infant's tenure of life precarious. Nursed whenever it cries, no matter whether that cry proceeds from hunger, colic, the discomfort produced by a wet diaper, or a displaced pin; receiving, even at the earliest age, all sorts of additional articles of food whenever the family are eating; allowed to feed at odd intervals, all night, is it any wonder that the digestive system breaks down? In cases where the mother's milk is insufficient, or the mother is forced to be absent all day at hard work, while the baby is left to the care of strangers, its chances for life are then terribly lessened. Rarely is the nursing-bottle properly cleaned; the milk, poor in quality when received from the local grocery, is frequently kept in a vessel from which the sour milk of the day previous has not been thoroughly washed, and here, as before, the food is given at all hours of the day and night. Even among the wealthy and educated the diet of the young child is too often either entirely neglected, or so poorly managed as to make it surprising that the death-rate from this cause alone is not greater than it is.

Among the poorer classes it is not at all uncommon to find women nursing their children long after the teeth have appeared, weaning not unfrequently being postponed until the child is between a year and a half, or even two and a half years old, the mothers justifying their choice of the child's

diet by the old and erroneous tradition, that impregnation cannot occur during lactation. It is by no means rare among dispensary patients, to find a woman nursing a child until its claim to its mother's breast is disputed by that of a rival brother or sister.

That the mother's milk is the best food for the child is a point upon which the whole medical profession is agreed. The recent experiments of physiologists have demonstrated not only the truth of this statement, but have shown why it is so; and all practising physicians, who are called upon to treat the digestive disorders of young children, unite in their positive statement as to the injurious effects which are almost sure, sooner or later, to follow any deviation from that diet which nature, when left to herself, so bountifully provides for the young of the human race.

Various substitutes have been proposed. Some of them, as the milk of cows and goats, very nearly resemble human milk, while others, sold in the market under various attractive names, are very different from it, both in their chemical constituents and in their supposed physiological action, when taken as food, into the human system.

In a most valuable paper on the subject of the excessive death-rate observed among infants from the so-called diarrhœal diseases, Dr. Baginsky gives (*Berliner Klinische Wochenschrift, Feb.* 21 *and* 28, 1876,) the results of a series of experiments which he made with the view of ascertaining the comparative merits of the various articles, which commonly go to make up the diet of infants. His investigations were confined to an examination of human milk, cow's milk, Swiss milk (condensed milk), two varieties of farinaceous food, and two specimens of so-called prepared infant's food. After an exposure of these various articles of diet to a temperature of about 67° for a period of twenty-four hours, he found that the human and the cow's milk remained almost unchanged, the Swiss milk, the two varieties of the farinaceous food, and of the artificial food, although appearing still to be perfectly fresh and wholesome, yet exhibited on examination bacteria in active motion. The reaction of the human milk was alkaline, that of the cow's milk was slightly acid, while the farinaceous and prepared foods gave a very strong acid reaction. After a further exposure of eighteen hours the cow's milk and the Swiss milk were found to be coagulated, while the farinaceous and prepared foods were in a high state of putrefaction. The human milk, however, still gave an alkaline reaction, and appeared almost unchanged.

To the use of improper food, therefore, Dr. Baginsky ascribes the large number of deaths from diarrhœal diseases,

a number which, according to his figures, has quadrupled during the last twenty years, while no other cause of death has presented such a marked increase.

The experience of those who have the care of asylums for infants confirms strongly the views here set forth as to the value of the mother's milk. The physicians of the New York Infant Asylum state (*Fourth Annual Report*, 1876,) that while only 14 per cent. of the infants who are admitted to that institution with their mothers die, 50 per cent. of those admitted without their mothers fall early victims to the disorders of the digestive system.

The history of the Massachusetts Infant Asylum (West Roxbury) adds very valuable testimony as to the different results obtained by the feeding of infants with human milk, or with any substitute, inasmuch as in that institution both methods have been tried. In this connection the following interesting account of that asylum, kindly furnished by Dr. Charles P. Putnam, one of the physicians in charge, is given as strongly confirming the views here presented: —

63 MARLBOROUGH STREET, June, 1876.

DEAR DOCTOR, — You ask me about the Massachusetts Infant Asylum.

We now take in a good many nursing mothers with their babies, so that almost every child that enters the Asylum is wet-nursed. Each mother nurses her own and a foster-child by turns, and feeds each in turn with bottle-food (unless one of them is too sick to bear artificial food at all). When a child comes in that has been on the bottle before, as is usually the case, we at once go to work to teach it to nurse, a matter of no little difficulty in some cases, and only now and then, when one comes in that is older than usual, do we keep it on the bottle only.

In this way we have raised a large number of babies that, had they not been admitted to the Asylum, would not have got along at all. Of the truth of this statement my experience, during the four years that I have been admitting physician, gives quite positive proof. Namely, the number of applications for admission has been vastly larger than the number which the size of the Asylum allowed us to admit; and of the babies that were refused for want of room, I have followed up quite a large number to see what became of them. Over and over again it has been my painful experience to see of two babies, equal, to all appearance, in health, that applied for admission to the Asylum, how the one that did get in went on steadily improving, while the one that was excluded went on as steadily losing ground. The mortality among the infants thus excluded for want of room has been enormous. Occasionally I have sent out notes to learn the fate of all the babies that have applied within a certain time, and have always found that a large proportion had died.

Those babies have fared best whose mothers have by any means managed to keep their children and nurse them, even when they were suffering severely from poverty. But this is not the usual condition. Most of the mothers who apply for the admission of their babies have already been forced to put them out to board, or are reduced to it soon after.

When the Asylum was first opened, the use of wet-nurses was not a part of the plan. But the admission of mothers to nurse their own and another child has become gradually a permanent feature of the Asylum work, — valuable to the foster-child that thus gets a share of breast-milk, and invaluable to the mother and her own child, who are thus kept together and out of harm's way.

Many factors have combined to bring the death-rate at the Asylum down to the very low number at which it now stands, but none, perhaps, so much as the introduction of the good supply of breast-milk, which we now almost always have at command, and which is utilized in the way I have described.

The effect was very striking on the general health of the Asylum, and still more on particular children at the time when the number of wet-nurses was largely increased. As each new one came, and a bed was set up for her in a nursery already too full of air-consumers, we could not but be afraid of losing, by overcrowding, more than we should gain. All such fears, however, were dispelled when we saw, in one case after another, the improvement brought about by the substitution of breast for bottle-milk.

Yours very truly,
CHAS. P. PUTNAM.

During the first four years after the Massachusetts Infant Asylum was opened, the annual mortality was 34.66, 38.77, 26.6, and 47.7 per cent., while the last four years the rate of mortality has fallen to 14.3, 19.48, 9.52, and 12.35 per cent. Doubtless various causes have combined to occasion this very marked and lasting improvement in the death-rate; but, according to the views entertained by those best informed upon the subject, the present healthy condition of the infants is largely due to the change made in the method of feeding them.

In an account of the Charities of France (1866), a most striking comparison is made, bearing directly upon this same point.

The statistics are there given of a large number of children received into the French Foundling Hospitals, and also of a large number who were placed under the care of hired nurses. The results, as given in the following table, confirm the statement made by the Physician of the Massachusetts Infant Asylum, as to the comparative advantages to be derived from having children properly nursed, over that system which crowds them together into the old-fashioned foundling asylum, where they are brought up on the bottle, under the care of women, to each of whom a very large number of babies is assigned.

	Number of Infants.	Died within 10 Days.	Per Cent.	Died within 1st Year.	Per Cent.
Number of infants admitted to Foundling Institutions in France from 1839 to 1850 . . .	48,525	5,372	11.07	27,119	55.8
Number of infants placed under the care of nurses in France from 1839 to 1850	24,169	489	2.02	7,181	29.7

Perhaps no better picture can be drawn to illustrate the evil results sure to follow the overcrowding and improper care of children, than is given in the statistics furnished to the Board of Health, by those in charge of the St. Mary's Infant Asylum, in Dorchester. A large house, beautifully situated on rising ground and surrounded by a clear, open space, offers a location than which nothing better could be desired. At the time the building was inspected by the Board of Health, in May, it was found to contain 58 infants, of varying ages, from a few weeks to about three years of age, or even older. The rooms used both for the sleeping-apartment and day-nursery were overcrowded with the little ones, and the air was poisoned by the emanations proceeding from so many human bodies. A very large proportion of the children were suffering from ophthalmia, and why the others escaped from the disease would be a difficult matter to explain, since those affected and those unaffected were playing together, and towels were used indiscriminately among the sick and well. According to the figures furnished to the Board of Health, by the Sister Superior, the following facts are ascertained: —

Number of children remaining, May 1st, 1875, . .	50
" " admitted during the year, . .	327
Total	377
Number of children discharged during the year . .	61
" " died " " . .	258
" " remaining, April 30, 1876 . .	58
Total	377

From these figures it appears that the mortality was 68.43 per cent. When it is borne in mind that the infant mortality of the whole city was but 9.48 per cent., the high death-rate at the St. Mary's Infant Asylum is at once startling and suggestive.

It is certainly questionable whether the deaths which occurred in this institution should fairly be counted in estimating the death-rate of the infants in Boston. Leaving them, therefore, out of the calculation, the number of deaths would be reduced from 4,167 to 3,909, and the death-rate would be reduced from 94.84 per thousand, to 89.45 per thousand. The total death-rate of the city would also be reduced from 26.77 to 26.03 per thousand.

When, for any reason, human milk cannot be obtained for infants, the use of cow's milk is the best substitute. It is, however, difficult for the poor to obtain an abundant fresh supply of pure milk. Before the milk reaches the consumer, who can afford to buy at any one time only a few cents' worth, it has passed through many hands since it first reached the city in the early milk-train. One of the chief difficulties with which the dispensary officers have had to contend for years, in their annual summer contests with the various so-called summer-diseases, has been the management of the diets of the little sufferers. Pure milk was with difficulty obtained, and the temptation to give all sorts of food, no matter what was the age or condition of the patient, was so great, that it was a wonder the results of the treatment were as good as they were.

The establishment, by philanthropic ladies, of the Diet Kitchen, was a grand step forward in the right direction. Daily, on the presentation of orders from the dispensary physicians, poor people received articles of diet for the sick and suffering of their families, who, but for this noble charity, would go without that wholesome food, which was often far more needed than any medicine. By far the larger part of the orders received were for milk, of which, according to the last printed report, 13,550 quarts were given out during the first ten months which followed the opening of the Diet Kitchen.

As showing the excellent results obtained by the use of the milk distributed among the poor by the agents of this charity, we desire to call attention to the following letter received from Dr. Frederic W. Vogel, who has for more than two years been the Dispensary Physician of the North End District: —

42 NEWBURY STREET, June, 1876.

DEAR DOCTOR, — In reply to your note, permit me to state that I have used a milk diet amongst the children, in my Dispensary District, very extensively during eighteen months, and that, from the experience gathered from many hundred cases, I can very heartily endorse your recommendation of its extensive use. I have given it in daily quantities, from one pint to three, according to age, and at the same time recommended the use of bread, or other cereals, with it.

I have seen the most striking results of this diet in the vast number of scrofulous cases, the majority of children being above one year of age, where the milk from the Kitchen was substituted for the strong tea, the salt or fried fish and meats, etc., which previously had formed the diet of the patients. In this connection I could mention some very remarkable instances of improvement, in spite of the many other bad hygienic conditions in which the patients were placed, several of them living in badly-ventilated cellars, with sleeping-holes without windows, and suffering from insufficiency of clothing.

For infants under one year, the change to the milk diet from the Kitchen gave, as a rule, less prominent results, since, where mother's milk could not be obtained, cow's milk, either alone or with farinaceous admixtures, had been used before the diet came into action. But even here, in cases where the milk was very destitute of the creamy element, I found the milk from the Diet Kitchen, the top part of the can being given in proper dilution, generally brought marked improvement, whenever the digestion was feeble. In children between six and eighteen months, when suffering from indigestion, I rarely resorted to the use of milk alone, the addition of groats, papoma, Liebig's food, etc., giving, as a rule, better results; and these only very rarely had to be discontinued, on account of the dislike of the patient. In this connection I should like to mention that, in children, as well as adults, I have not seen any article of diet which could be given, for such long periods, without getting the patient tired of it, as milk.

Very truly yours,

FRED. W. VOGEL.

The following extract, from a letter from Dr. James B. Ayer, the Dispensary Physician of the West End District, also adds strong testimony as to the good done by this free distribution of milk among the poor of the city: —

. . . . . .

You also inquire if, in dispensary practice at the West End, the children have been benefited by the pure milk allowed them from the Diet Kitchen.

I can speak in the highest praise of the great amount of good which this most practical charity has done for the poor of my district, and especially for very young children. During the past ten months fully 200 children from this district have obtained pure milk through the Diet Kitchen; and to this aid, in a large fraction of the cases, improvement could be directly traced.

There are hundreds of families on Beacon Hill who live in wretched quarters, and in the cheapest possible manner. These people look upon milk as a luxury, and rarely purchase more than a gill at one time, and generally this is of very poor quality.

When a child, in one of these families, receives a daily allowance of a quart of pure Diet Kitchen milk, it is not surprising that the improvement in its condition is so noticeable. Many of the children seen by the dispensary physician do not need medicine so much as food, and in many cases an order on the Diet Kitchen is the only prescription I find necessary to write. . . . . .

Cleanliness. — Among the poor and ignorant this subject is one which rarely receives any attention, while among those in better circumstances even, a great improvement might with advantage be insisted upon.

An occasional bath, too often considered a luxury and not a necessity, is the only attention given to the surface of the child's body, which, owing to the abundance of its countless constantly exhaling pores, is an important organ of excretion.

The soiled diaper, filthy with the excreta from both the bowels and bladder, is often changed only at the convenience of the attendant, the infant meanwhile breathing the air poisoned by the exhalations arising from the filth in which it is thus allowed to lie for hours.

Proper Clothing — Not unfrequently the first disturbance of the digestive system owes its origin to the sudden checking of the perspiration by a draught of cold air blowing directly upon the improperly protected body of the helpless infant. A common sight in those crowded sections of the city which are occupied by the foreign population is a poor baby carried about by its mother, or older sister, its unprotected head exposed to the direct rays of the hot summer's sun.

The ignorance or poverty of the parents not unfrequently allows the baby to sleep at night in the same clothes that it has worn all day, utterly regardless of the sickening odors arising from the unaired clothing, which is redolent with the accumulated exhalations from the skin of the heated and sweating body within.

Respiratory Diseases. — An examination of the chart of the Daily Infant Mortality which accompanies this paper, shows that, while deaths from diseases connected with the respiratory system occur more or less during the whole year, there is yet a very marked increase in the number of such deaths reported during the colder months. While, as has been shown, fresh air is one of the few needs of the infant, it is a well-recognized fact that, especially in the earlier months of infancy, an exposure to cold or dampness is often fatal. In cold climates the death-rate of young children is very much higher than it is in warmer latitudes, and a careful examination of statistics, bearing upon this point, shows that a marked difference in the death-rate from this class of diseases follows the isothermal lines. Our own climate, with its varying temperature and its sudden changes, is a most trying one, and the young readily fall victims to its influence.

It will be seen that more than a quarter of all the deaths arising from diseases of the respiratory system is due to croup, which prevails at all seasons of the year, although to a much greater extent in the colder than in the warmer months. The improperly drained cellars, the leaky roofs, and the broken windows of many of the tenement-houses of the city,

s in
the
f a

his
the
es:
sy,
sis
nd
pt-
ns

l be
m-
ve-
the
the
eat
m,
the
ny
the
of
er
id-
lu-
ile
nd

of
of
n,
ic
of
or
ce
be
of
he
he
on

by
a-
e-
ed

A
a ne
chil
con
T
els
of
pois
is th
P
of t
ing
dire
infa
city
bab
tect
sun
T
allo
has
aris
acc
swe
I
the
sho
resp
yea
suc
has
fant
mo
oft
chil
and
poi
this
clin
is a
infl
I
aris
cro
mu
Th
bro

the scanty clothing, and the limited supply, or, as happens in too many cases, the absolute want of fuel in many of the homes of the poor, are all causes which annually carry off a large number of children from this class of diseases.

Diseases of the Brain and Nervous System.— Under this head are grouped together cases which are returned to the Board of Health for registration under various names: meningitis, convulsions, disease of the brain, epilepsy, paralysis, tetanus, and many others, of which the diagnosis is, in a large number of the cases, so imperfectly stated and evidently so unreliable, as scarcely to warrant us in attempting to say anything as to the causes, or the probable means of prevention.

Debility, Exhaustion, Inanition and Marasmus.—It will be seen by reference to the mortality tables that no small number of deaths is annually classed under some one of the above-mentioned heads. An examination of the dates of the deaths said to be due to marasmus, however, shows the curious fact that this disease is reported to prevail to a great extent at the same seasons of the year as cholera-infantum, and it is questionable whether there is not included under the general term marasmus a very large number of deaths, at any rate, which belong properly under the head of deaths from the diarrhœal diseases. Furthermore, it may be said that many of the same causes, which produce all of these so-called summer complaints, may, when acting less violently and more insidiously, accomplish the same results, the little sufferer gradually pining away through lack of proper care and diet, while in the former class of cases the disease is more acute and rapidly fatal.

Measles, Scarlet Fever, and Whooping Cough. — It is, of course, among the poor and ignorant that this class of diseases finds its readiest victims. Arising from contagion, and spreading rapidly or slowly, according to the hygienic conditions of the community, their influence upon the rate of infant mortality must largely depend on the crowded or scattered condition of the lower classes, to whose ignorance and carelessness their existence and spread are largely to be ascribed. Whether it would be possible, by the adoption of measures similar to those carried out in this city during the late epidemic of small-pox, to banish eventually from the community these various contagious diseases, is a question which seems to merit careful consideration.

Diphtheria. — During the past year, as will be seen by reference to the special chart on the subject which accompanies this paper, a quite severe epidemic of diphtheria prevailed in the city. The number of deaths weekly reported

increased gradually until the maximum was reached during the winter months, and with the returning spring the death-rate slowly fell, and is fortunately still falling. The causes of diphtheria are still undetermined, but the theory is gradually gaining ground that its existence is in some way influenced, at any rate, by local causes, such as bad sewerage, drainage and the like.

Scrofula, Syphilis, and Tuberculosis. — All of these causes are to a greater or less extent hereditary, and, therefore, but little can be done in the way of preventing their fatal influence over the lives of those whose parents have fallen victims to the same causes.

Premature or Difficult Birth and Imperfect Development. — Here, again, the question of poverty comes to the foreground, for there can be no question that the life of the mother during the period of gestation has an all-important bearing upon the health and well-being of her offspring. Not a few of the premature births annually reported are due to over-work at improper times. In a few cases the term "difficult birth" is doubtless used by the medical attendant when the phrase "medical incompetency" would more truthfully represent the true cause of death.

Still-births. — Although not classed under the head of deaths nor counted among the total mortality, the subject of still-born children seems to deserve a moment's attention. Last year 490 children were born dead. Of this number 126 were of native and 364 were of foreign, mixed or unknown parentage. An examination of the returns made in these cases shows that the mothers of 172 of the children were attended during their confinement by uneducated women or charlatans of various sorts. It is a matter deserving of serious attention whether the large number of the still-born cannot be reduced. A law which should require midwives to be licensed, either by the Board of Health or some other responsible body, would do much towards diminishing the number of still-births.

Having now spoken in detail of many of the special causes of the high death-rate of infants, there remain yet several general causes contributing to the final result, which not unfrequently increase the patient's liability to contract disease, while at the same time they greatly diminish its chances for recovery when taken sick. Among these general causes may be mentioned illegitimacy, poverty and ignorance. Of course, these several causes act only indirectly, by preventing the child from receiving the proper care

and attention, which are so much needed during the earlier weeks and months of its existence.

Illegitimacy. — It is a well-known fact that illegitimate children suffer most from the diseases of infancy. According to the statistics of France (*Annales d'Hygiene*, XXVIII.), 24 per cent. of all the illegitimate children die within a month after birth, while only 10 per cent. of those born in wedlock die within the same period. Nor is this at all surprising. The unmarried woman, anxious in most cases to keep her past history a secret, cannot take care of her own child, and therefore it is placed, soon after its birth, in the hands of some poor woman, who is willing, for the sake of a small weekly stipend, to take care of it. This weekly tax upon the young mother's wages soon becomes a burden, of which she is only too glad to rid herself, and, therefore, in a very large number of such cases the desertion of the baby, by the disappearance of the mother, takes away whatever little interest the hired protector of the child may have felt in its welfare up to that time.

Poverty. — Not unfrequently the mother is obliged to work hard all day, that the weekly rent may be paid when it falls due, or that she may be able to obtain even the barest necessities of life for her large, and oftentimes rapidly increasing family. The baby is, therefore, left during the day in the hands of strangers or an older child, while the mother is absent, and too soon falls a victim to the neglect thus brought about by the sheer necessities of the case.

Statistics show (*Trans. Social Science*, 1860, *p.* 650) that, compared with the number living under one year of age, the number of deaths occurring in the wealthiest families is 20 per cent., in the middle classes 44.4 per cent., and in the poorest, 50 per cent.

In connection with the boarding-out of babies, a word should here be said in relation to what is known as baby-farming. A large number of women in this city support themselves by taking in babies to board; the more babies they can obtain, the greater their income, and the temptation to crowd their wretched homes with these little boarders is very great. The infant mortality, arising from the neglect or improper care which these babies must necessarily receive, is very large. It is a matter of congratulation that in this respect there is some prospect of an immediate improvement. The Legislature of 1876 passed the following excellent law, which promises protection to those unable to protect themselves: —

AN ACT for the better Protection of Infants.

Be it enacted, etc., as follows: —

SECTION 1. Whoever engages in the business of taking nursing infants or infants under three years of age to board, or of entertaining or boarding more than two such infants in the same house at the same time, shall within two days after the reception of each such infant beyond the first two, give written notice to the Board of Health of the city or town where such infant is so to be entertained or boarded, specifying the name and age of the child, and the name and place of residence of the party so undertaking its care; and such Board of Health shall have the right to enter and inspect said house and premises while said business is being carried on, and to direct and enforce such sanitary measures, respecting such children and premises, as it may deem proper.

SECT. 2. Any person violating any of the provisions of this Act, or refusing admission to such Board of Health, for the purpose mentioned in the preceding section, shall, on conviction thereof, be punished by a fine of not less than fifty, nor more than five hundred dollars.

[*Approved April* 21, 1876.]

Ignorance. — The improper care which children receive, and the unsuitable diet given them, are, in a large majority of cases, due to the ignorance of their parents. Many a poor mother, living in a crowded tenement-house, is as anxious for the life of her offspring as is she who lives within the walls of our most fashionable dwellings. The baby, however, dies through the ignorance of its mother, who tried to take proper care of it, but did not know how to do so. When taken sick the remedies first used, before any medical advice is sought, are not unfrequently those which remind one of the days of superstition. In an excellent article on Infant Mortality (*Fourth Annual Report of the State Board of Health of Massachusetts*, 1873), Dr. Edward Jarvis gives some curious figures, which show that, for every 1,000 children who died in their first year among the more educated class of the community, 1,698 died among the less educated, the death-rate of those under one year of age among the former being 14.65 per cent., and 24.87 among the latter.

There can be no question but that many of the causes of the high death-rate observed among infants are theoretically removable. Whether practically any great reduction is possible is perhaps questionable. Ignorance and poverty are two of the chief factors which go to make up the startling result, and there is but little hope of any improvement in these directions. Still, at any rate, something can be done to spread among those who are ignorant from necessity rather than from choice, facts in a popular form, which shall show them the errors into which they have unconsciously fallen in their efforts to

rear their offspring. Such facts would, in many cases, be gladly received, and the knowledge derived from them would do much towards securing proper care for the helpless children, who now suffer from the ignorance of those in whose hands the safety of their lives has been placed.

III. MEASURES PROPOSED FOR THE REDUCTION OF THE DEATH-RATE OF INFANT MORTALITY.

1. *Greater Attention to the General Sanitary Condition of the City.* — The adoption of an improved system of sewerage; the frequent inspection of local drains; the prompt removal, especially in the summer months, of garbage from dwelling-houses and all decaying vegetable or animal matters from the streets; the constant disinfection of alleys and passage-ways, are all measures, by the adoption of which the general sanitary condition of the city could be improved.

2. *The Establishment of Public Parks and Squares in and about the City.* — The more open spaces there are in a city, the purer the air, and the less danger of the outbreak and spread of diseases resulting from a poisoned condition of the atmosphere. The proximity and easy accessibility of a public park offer a great inducement on Sundays, holidays, and at other leisure times, to the poor to leave with their children their heated and crowded homes, and during the summer to obtain, at least occasionally, the pure, fresh air of the country.

3. *A systematic and frequent Inspection of the Homes of the Poor.* — Only by the adoption of measures providing for a frequent and rigid inspection of the houses occupied by the poor can we make certain that the provisions of the laws relating to tenement houses shall be faithfully carried out. It is worthy of consideration whether some additional legislation is not needed, by which the present too frequent overcrowding of these houses may be prevented. In connection with this subject also the necessity of *a rigid enforcement of existing sanitary laws* should be mentioned. The laws relating to tenement houses, to the boarding-out of infants, to the licensing of lying-in hospitals, to infectious diseases, are all drawn in the interest of the young, and they only require to be strictly enforced to bring about a marked diminution in the rate of infant mortality.

4. *The Dissemination of the Rules which should govern the bringing up of Children.* — By using every means of teaching the ignorant the simple rules of living, the violation of which is productive of disease and even death, much can be done in the way of preserving health and saving life. The publication, under the authority of the Board of Health, of

plain and intelligible rules, such, for example, as are appended to this paper, which shall show how children should be brought up would teach many, only too willing to learn, the way to avoid the fatal errors into which their own ignorance has unconsciously led them. Such rules could be easily circulated among those who most need them, by the various health-officers connected with the numerous dispensaries and hospitals of the city. When it is remembered that over *fifteen thousand sick children* are treated annually by the medical officers of these various public charities, it will be apparent how extensive the circulation of such knowledge might be, and what great good would result from the gratuitous distribution of such sanitary rules.

5. *The Establishment of Diet Kitchens.* — A generous public support of the movement in favor of the establishment of Diet Kitchens would greatly aid in the reduction of infant mortality. Already two branch-offices have been established, and a number of others would doubtless be opened by those in charge of them, if the supply of funds, received from those charitably inclined, was sufficient to warrant the additional expense. The testimony of those whose opinion is of value, attests fully the great good which has already proved the wisdom of establishing such a charity.

6. *The Establishment of Country Homes.* — The experience of those who had in charge the so-called Sea-shore Home, at Beverly, during the last summer, is of great value as showing the beneficial effect which the pure, fresh air of the country, combined with the proper regulation of diet, had upon the little sufferers who were carried there from the heated, crowded, and poorly-ventilated tenements of the city. This form of charity also calls for greatly increased pecuniary assistance, in order that the number of such resorts may be increased, and thus many lives saved, which must otherwise be lost.

It is also worthy of consideration, whether a similar benefit, though doubtless less marked, might not follow the establishment of inland homes for those who, in the colder seasons of the year, are attacked with diseases of the respiratory system, and for whom the air of the sea-shore would naturally be too bracing.

7. *The Establishment of Infant Day Asylums.* — Many a hard-worked mother is obliged to be absent all day, in order to contribute her mite towards defraying the daily expenses of her household. Her infant is left in the care of some neighbor, or with an older child, and the care it gets is purely a matter of accident. The mother would, in many cases, as gladly pay a competent as an incompetent person for the

care of her baby, which she is forced herself to neglect, but she knows of no such person. The opening, in various districts of the city, of temporary homes, where, for a small price, the baby could be properly taken care of while the mother was at work, would doubtless save the lives of many who would otherwise die. The experiment has worked well in Paris, London, and many other of the European capitals, and is certainly worthy, at least, of a thorough trial here.

8. *The Establishment of Foundling Hospitals.* — Such institutions should be, of course, conducted on a plan similar to that of the Massachusetts Infant Asylum, and not after the model of the old-fashioned asylum of by-gone days. Of course, this is a subject to which more or less opposition is always shown, on so-called moral grounds. That spirit of Christianity is truly questionable which closes the door of charity against the knock of the poor, deserted infant, who, coming through no fault of its own into a heartless world, can find no helping hand, because its parents sinned.

9. *Isolation of Contagious Diseases.* — Theoretically it must be admitted that, if it were practicable to adopt the same measures in the management of all diseases, whose spread is known to be due to contagion, as are approved by public sentiment when applied to cases of small-pox, the result would be the checking, at least, of the spread of, if not the absolute putting an end to, the existence of such epidemic diseases.

The study of public hygiene has already done much towards improving the sanitary condition of our large cities and towns, but much yet remains to be done. The field for future work is large; unfortunately the laborers in it are few.

Of all the questions engaging the anxious thought of sanitarians, and deserving the study of those interested in the welfare of the human race, there is none which should call for more consideration than that which deals with the problem how to save the lives of those helpless to help themselves. It is surely for the highest interest of the State to see to it that no means are left untried which may prove, in the least degree, of service in saving the lives of those, who may be the very ones to whom, at some critical moment, the State may have to turn for its own salvation and defence.

RULES FOR THE MANAGEMENT OF INFANTS.

CLEANLINESS.

AN infant should be bathed every morning in warm water. If it is feeble, or if the weather is unusually hot, it should also be bathed again, before being put to bed at night. After washing, the body should be wiped thoroughly dry. As the child grows older the temperature of the water should be gradually lowered, so that, by the time the baby is four months of age, water should be used to which only warm water enough has been added to take the chill off.

Let the diapers be frequently changed, and have them always washed in boiling water before being used a second time. If possible never have the diapers dried in the room occupied by the baby.

FRESH AIR.

Give the child all the fresh air possible. Keep the windows of the room open day and night in hot weather, unless the heat of the outside atmosphere is greater than that within the room. Avoid as much as possible any overcrowding of the room occupied by the baby, especially at night. Have the baby taken out every day when the weather is fine. Do not keep the child in the same room in which cooking or washing is going on.

CLOTHING.

The clothing of a baby should be light, loose and warm. Except during the summer months the arms and legs should be covered. Have the night-dress thoroughly aired during the day, and the day-clothes aired during the night. Use only safety-pins. Do not keep the child's head heated by any covering, except when out-doors or when exposed to unusual

cold. In summer never allow the child to be exposed to the direct rays of the sun.

SLEEP.

Every baby requires considerable sleep. Never wake a sleeping child. It should never be allowed to sleep with any other person. Regularity in reference to its hours of sleep is as necessary as for its times of feeding. At those hours it should be put in its bed, where it should be left to go to sleep, unaided by any rocking. A child very quickly acquires the habit of going to sleep on being put to bed.

DIET.

As a rule, until a child has its eight centre teeth, it should receive *no food but milk.*

Breast-milk is better than cow's milk, and the mother's milk superior to that of a wet-nurse. Observe regular hours for feeding. When overheated or fatigued, never nurse a child.

Until the child is six weeks old feed it every two hours during the day, and every three hours during the night. After this gradually lengthen the intervals between the meals, so that, by the time the baby is four months old, it shall be fed every four hours during the day, and if necessary once during the night.

Do not consider that every time a child cries it is necessarily hungry. In hot weather, or if the child is feverish, allow it to drink freely of cold water.

If the mother has not breast-milk sufficient for the child let the child be fed twice a day with the bottle. A flat bottle, its open mouth covered with a rubber nipple, is all that is required. Complicated nursing-bottles should never be used, owing to the difficulty which will be found in keeping them properly cleaned.

At first equal parts of milk and warm water should be used, with the addition of half a teaspoonful of sugar. The quantity of food thus prepared for a meal should not at first exceed a sixth of a pint. As the child grows

older the amount of water added should be lessened, and the sugar should be altogether omitted. By the time the child is four months old it should have pure milk, which in very hot weather need not be warmed. Immediately after using the bottle, always scald it thoroughly. The rubber nipple should be kept always in cold water when not in use. In very hot weather a little soda should be added to the water with which the bottle is washed, and also to that in which the nipple is kept. The best milk is obtained by allowing the can to stand about an hour after receiving it, and then pouring off for use the upper two-thirds.

In very hot weather the milk which has thus been poured off should be at once boiled. It is also well to add, during the extreme heat of the summer, especially if the child is at all troubled with diarrhœa or vomiting, a teaspoonful of lime-water to each bottleful of milk.

If the child is to be brought up by hand, it should be fed with the bottle, as described above, and at the same times as if nursed.

If *pure* milk cannot be obtained, condensed milk may be tried. It should always be kept in a cool place, and is best prepared by adding one teaspoonful of the milk to six table-spoonfuls of boiling water. As the child grows, the strength of the mixture should be increased.

All prepared varieties of so-called infants' food are to be avoided, unless especially ordered by a physician. There is no proper substitute for milk.

WEANING.

As soon as the centre teeth have come, the child should have in addition to its milk one or two other meals a day. These should consist *only* of bread, either fresh or stale, or crackers with the milk. Gradually the mother's milk should be withdrawn from the child, so that it should be completely weaned by the ninth month, unless that period should happen to fall in the midsummer. *Milk should still be its main diet.* After the child is ten months old, it may have one meal a day of simple broth (mutton or chicken), or beef tea with bread.

When the child is a year old it may have daily a little meat, cooked rare, and cut up fine. The yolk of a fresh, rare-boiled egg may also be given daily. Even at that age, however, milk should be freely given, and should form the main part of its diet.

GENERAL ADVICE.

Have the child properly vaccinated as early as possible.

Never, under any circumstances, except by medical advice, give a child soothing syrups, sleeping drops, cordials, spirits, or any of the numerous so-called carminatives.

If a child is suddenly taken sick with vomiting and diarrhœa, send immediately for the doctor. Until he arrives *give no medicine*, but, if the child seems in pain, wring out flannels in hot water and place them over the belly. Keep the child's body, arms and legs warm. Keep cool, and do not give the child the various things which will be suggested by the neighbors.

To make lime-water, put half a pound of quick-lime into an earthen vessel, pour over it slowly a gallon of cold water, stir it well and allow it to stand twenty-four hours; then skim it and pour off the clear liquid into clean bottles, which should subsequently be well corked.

RULES FOR THE MANAGEMENT OF CHILDREN OVER TWO YEARS OF AGE.

Regularity as to the hours of eating and sleeping should be insisted upon for children after, as well as before, they are weaned.

Children should be bathed frequently, and should be allowed plenty of fresh air and exercise. The sleeping apartment should always be well ventilated. Each child should have its own bed, if possible.

Plenty of good, substantial food should be given, and children should not be allowed to eat confectionery, cake, pies, or any similar articles. Unripe or over-ripe fruit should be forbidden. Tea and coffee should not be given to them.

Exposure to sudden changes of heat and cold, to wet and dampness, or to the direct rays of the summer's sun without proper protection, should be avoided at all times.

In the colder months of the year flannel should always be worn next to the skin, at least over the child's chest.

EXPENDITURES

OF THE

HEALTH DEPARTMENT.

EXPENDITURES OF THE HEALTH DEPARTMENT.

HEALTH OFFICE, CITY HALL, May 1st, 1876.

TO THE HONORABLE BOARD OF HEALTH: —

GENTLEMEN, — In conformity with the Ordinance relating to Health, I herewith submit my report of the expenses of this department for the financial year 1875–76.

Amount appropriated	$430,000 00
Amount expended	387,134 72
Unexpended balance May 1st, 1875 . .	$42,865 28

The above amount of $387,134.72 was expended as follows: —

For sweeping and cleaning the streets, the removal of snow and ice from public walks, yards, streets and squares, from May 1st, 1875, to May 1st, 1876	$104,979 92
For the collection and removal of house offal from hotels, stores, houses, restaurants, etc., in city proper, South Boston, Highlands, Charlestown and Dorchester . . .	62,222 07
For the collection and removal of house dirt and ashes in city proper, South Boston, Highlands, Charlestown and Dorchester .	94,660 93
For cleaning cesspools in city proper, South Boston, East Boston, Highlands and Dorchester	11,588 07
Official roll of office, including Milk Inspector's Department	8,500 00
Foremen, feeders, blacksmiths, wheelwrights, watchmen, painters, harness-makers, and drivers of prison carriages	22,360 19
For grain used at city stables, south and west, Boston Highlands and Charlestown . .	19,430 23
Amount carried forward,	$323,741 41

Amount brought forward,		$323,741 41
For hay and straw used at city stables, south and west, Boston Highlands and Charlestown		8,995 05
For the collection and removal of ashes in East Boston		6,207 00
Purchase of new horses and exchanges		12,702 50
For stock and tools of blacksmith's shop		3,947 45
Stock and tools of wheelwright's shop		1,962 35
Harness shop, stock and tools		1,983 56
Paints, oils, varnish and brushes		603 52
Extra team work in collecting ashes, etc.		8,530 99
For repairs on stables, south, west, and Boston Highlands		1,096 26
Fuel and gas for city stables		1,354 43
East Boston ferry-passes for men and teams		270 00
Medical attendance on horses and horse medicines		698 86
Milk Inspector's office, for analysis of milk, stationery, advertising, etc.		329 88
For sawing and planing, cesspool and other stock		263 15
For shoeing horses, west-end stable and Charlestown		523 62
For printing bill-heads, notices, blanks, etc.		309 71
Stationery for office and stable use		109 53
Advertising		296 38
Stock for making street-brooms		1,334 64
For collection and removal of house offal from East Boston, as per contract		3,000 00
For collection and removal of house offal from West Roxbury		1,500 00
Incidental expenses as follows: —		
Lock, key, hod and brand	$5 91	
Daily Advertiser (office use)	12 00	
Repairing fence damaged by team (city)	10 40	
Oil and axle grease	122 65	
For baiting horses at West Roxbury, Charlestown and East Boston	193 95	
Refreshments and carriage hire	741 60	
New England dial for office use	1 80	
Freight (Prov. R. R.)	6 31	
Amounts carried forward,	$1,094 62	$379,760 29

Amounts brought forward,	$1,094 62	$379,760 29
Washing, bedding and towels of city stables	54 62	
Cleaning watch clock	3 58	
Grass seed	1 87	
Directories for office use	27 50	
Lard, rosin, matches, oil, flour, stove-polish, etc.	20 96	
Soft soap	4 50	
Slate and shovel	1 55	
Gas governor for stable use	30 00	
Boston Ice Co.	12 50	
Clock for stable use	14 00	
Bedding for stable use	6 23	
Repairing locks	5 13	
Repairing stoves	1 30	
Buffalo robes	22 00	
Window-shades for stable	17 40	
Repairing harness	7 25	
Repairing hay-cutter	3 50	
Repairing vehicles damaged by city teams	48 09	
Two "Hopkins' Atlas"	29 00	
Horse-covers and whip	10 00	
Cedar post	50	
Ticket punch (Offal Station)	5 00	
For care and delivery of offal at Charlestown Station	150 00	
		1,571 10
Water-rates, 1876		1,121 25
Canvas covers for carts, baskets and shovels (Ash Department)		423 93
Buckets, tubs, C. lime, springs and flanges (Offal Department)		279 83
Hoes, shovels, brooms, oil, hose, water-tank, flanges, bolts, springs, spruce poles (Street Department)		2,103 13
Cesspool-boots, overalls, frocks, buckets and hoes for cesspool teams, and lumber for cesspool covers		1,002 27
Stock for stables, consisting of brushes, curry-combs, sponge, soap, blankets, manure-forks, etc.		872 92
Total amount expended		$387,134 72

There have been deposited for collection from May 1st, 1875, to April 30th, 1876, bills amounting to $30,124 30

There have been paid into the City Treasury, and the amount credited this department for material sold during the same period, as follows: —

Sale of ashes	$16,679 39
Removing ashes	1,621 99
Sale of stable manure	973 29
Sale of street dirt	2,038 92
Sale of offal	19,006 12
Conveying prisoners	2,735 50
Sale of old material	378 00
Board of horse	98 00
Storage of hacks	50 00
	$43,581 21

PRISON CARRIAGES.

During the past year there have been conveyed from the several station-houses to the city prison under the court-house, for which the Police Department is charged 25 cents per head: —

6,260 Males; 2,253 Females. Total, 8,513.

There have been conveyed (without charge) county prisoners, as follows: —

From Court-house to Jail	2,827
" Jail to Court-house	1,069
" Court-house to House of Correction	380
" Court-house to Deer Island boat	6,525
" East Boston to House of Correction	43
" East Boston to Jail	108
" Jail to East Boston	60
" East Boston to Deer Island steamer	342
" South Boston to Deer Island steamer	729
" South Boston to Jail	211
" Jail to Court at South Boston	60
" South Boston to House of Correction	32
Total number conveyed	12,386

The sexes are conveyed in separate vehicles.

ASHES, STREET DIRT, ETC.

Collected by city teams from May 1st, 1875, to May 1st, 1876: —

116,373 loads of ashes.
58,733 " street dirt.
9,087 " cesspool matter.

The number of teams owned and employed by this department is as follows: —

55 carts for ashes.
29 " street dirt.
41 wagons for offal.
12 " cesspools.
8 sweeping-machines.
3 prison carriages.
5 water-carts.
1 market team.

ASHES

are collected by the city teams from hotels, tenement houses, and stores twice in each week and from dwellings once a week. Bills for the sale of ashes and other material are forwarded to the City Collector.

HOUSE OFFAL

from markets, hotels, and restaurants is collected daily, and from dwellings three times a week during the summer, and twice in each week during the winter.

CESSPOOLS

belonging to the city are cleaned by this department, and their contents conveyed to the dump, and immediately covered with ashes.

STREET CLEANING.

During the season of street cleaning, the principal thoroughfares are swept daily, and others twice in each week, and it only remains for occupants of stores and offices to comply with the regulations of this department, and cause their sweepings to be placed in proper vessels on the sidewalks and removed by city teams on regular days, which would greatly improve the sanitary condition of our streets.

SCHEDULE OF CITY PROPERTY

Connected with South, West, Boston Highlands and Charlestown Stables.

187	horses with harnesses, at $300	$56,100 00
4	express harnesses, at $25	100 00
15	light harnesses, at $25	375 00
1	spare lead harness	20 00
2	breast " "	50 00
7	collars, at $1.50	10 50
67	pairs hames, at $6.75	452 25
6	new bridles, at $7	42 00
38	martingales, at $1.12½	42 75
3	hoisting harnesses, at $30	90 00
113	halters, at $1.25	141 25
156	strings sleigh bells, at .75	117 00
54	shaft girths, at $2	108 00
35	pair reins, at $3.50	122 50
12	sweat collars, at $2	24 00
30	collar pads, at .20	6 00
12	horse slings, at $1	12 00
1	new breast harness,	100 00
12	" cart saddles, at $21	252 00
4	" offal saddles, at $15	60 00
5	old cart saddles (lot)	25 00
17	cart breechings, at $10	170 00
16	offal breechings, at $9	144 00
2	rubber horse covers, at $3	6 00
51	pair new winkers, at $2.50	127 50
19	pair hip ornaments, at .25	4 75
31	pair check reins, at $1.50	46 50
14	iron hame fasteners, at .50	7 00
9	hame straps, at .50	4 50
202	woollen blankets with girths, at $3	606 00
138	carts for collecting ashes and street dirt, at $100	13,800 00
58	one-horse wagons for collecting house offal, at $150	8,700 00
14	one-horse cesspool wagons, at $200	2,800 00
5	express wagons, at $75	375 00
	Amount carried forward,	$85,041 50

Amount brought forward,		$85,041 50
2	open offal wagons, at $100	200 00
33	cart wrenches, at $1.50	49 50
5	vehicles for conveying prisoners	1,200 00
8	open wagons, at $100	800 00
1	old chaise	10 00
1	hay rigging	75 00
1	hay rigging	100 00
3	top buggies	250 00
2	covered carriages	250 00
159	sleds for conveying ashes and offal, at $60	9,540 00
8	sleighs, at $75	600 00
3	pungs	20 00
1	covered omnibus sleigh	50 00
2	hand sleds for removing snow, at $3	6 00
14	drag boxes for same purpose, at $1	14 00
42	snow drags, at $1	42 00
1	scraper	12 00
2	snow ploughs, at $10	20 00
1	ice plane	10 00
13	sweeping machines, at $300	3,900 00
9	water carts, at $250	2,250 00
1	wagon body	10 00
129	cesspool covers, at $1.50	193 50
15	offal chisel handles, at .50	7 50
165	offal chisels, at $2	330 00
92	offal buckets, at .50	46 00
6	offal tubs, at $2	12 00
10	water pots, at $1.50	15 00
4	goosenecks, at $15	60 00
341	broom handles, at .50	170 50
20,829	bundles broom stuff, at .08	1,666 32
88	baskets, at .50	44 00
51	ice chisels, at $2.50	127 50
35	dipping poles, at $2	70 00
63	cesspool hooks, at $1	63 00
24	sets cesspool tools, at $3	72 00
10	street blankets, at $5	50 00
60	lbs. of axle grease, at .10	6 00
6	tool houses, at $20	120 00
1	lot broom cord	3 00
2	oil-cans	6 00
4	lanterns	5 00
129	offal bucket bottoms, at .07	9 03
121	cart covers, at $1	121 00
Amount carried forward,		$107,647 35

Amount brought forward,		$107,647 35
21	cart covers (new), at $3	63 00
1	keg (60 doz.) buttons, at .06	3 60
8¼	doz. new offal buckets, at $8.50	70 12
1	pair clipping shears	3 00
37	pairs cesspool boots, at $5.50	203 50
6½	doz. bucket handles, at .87½	5 69
4	carriage weights, at $3	12 00
87	old cart hind boards	10 00
1	barrel lubricating oil	15 00
38	offal chisels, at .50	19 00
2	brass flanges for offal wagons	6 50
1½	set rubber cesspool springs, at $69	103 50
1	pitch pan and table	10 00
83	lbs. pitch	1 00
276	lbs. bass, at .15	41 40
19	crowbars, at $2.25	42 75
62	pickaxes, at $1.50	93 00
16 1850/2000	tons hay, at $18	300 15
6 1955/2000	tons straw, at $26	181 41
2,500	feet oak boards, at $60	150 00
10,500	" " at $30	315 00
7,262	" " at $45	326 79
3,000	" spruce boards, at $18	54 00
1,000	" scantling	18 00
122	old street hoes, at .50	61 00
215	steel and iron shovels (new), at $2	430 00
306	" " " (old), at .50	153 00
358	" " " at $1	358 00
158	street hoes, at $1.37½	217 25
91	mauls, at .25	22 75
2	rammers, at $3	6 00
41	scrapers, at .10	4 10
4	hay cutters, at $20	80 00
13	six-tined forks, at $2	26 00
178	water pails, at .75	133 50
10	pairs poultice boots, at $5	50 00
58	manure forks	27 50
4	hay forks, at $1.50	6 00
5	pair steps, at $3	15 00
2	stagings	15 00
2	window frames	10 00
1	whitewash brush	1 00
1	coil rope	0 00
1	spare tool chest	20 00
Amount carried forward,		$111,351 86

Amount brought forward,		$111,351 86
4	spare grain chests	40 00
27	manure hooks, at .50	13 50
6	feed troughs and tools, at $50	300 00
1	lot horse medicines	10 00
4	wheelbarrows	10 00
1	lot rubber hose	50 00
1	lot leather hose	100 00
4	tackle and falls	90 00
18	lbs. sponge, at $1.50	27 00
1	dust-brush	1 00
10	gallons neats-foot oil, at $2	20 00
2	furnace and copper boilers	150 00
2	hoisting blocks	4 00
2	copper boilers	20 00
1	lot straw matting	20 00
3	gas lighters	3 00
3	muzzles, at $2	6 00
1	lot iron gutters	15 00
9	bags salt, at $1.75	15 75
2	dripping-pans	20 00
1	horse duster	1 50
19	new blankets (carpeting)	100 00
7	four-tined forks, at $1	7 00
2	doz. corn brooms, at $2.50	5 00
14	hay-hooks, at .25	3 50
1	hay-cutter for cutting bass	10 00
41	lbs. castile soap, at .12½	5 12
	Stock and tools in wheelwright's shop	275 00
1	lot tools	5 00
65	feet of hickory, at .06	3 90
1	pair sleigh runners (prison)	25 00
5	sets light wheels	100 00
141	hubs, at $1	141 00
1,000	feet finished stock, at .07	70 00
628	felloes, at .16	100 48
3,967	spokes, at .17	674 39
3,535	feet Canada pine, at .65 per M.	229 77
20	feet hard pine at .08	1 60
4	sets offal wagon wheels	175 00
5	sets buggy hubs, at $1.25	6 25
16	pairs heavy shafts, at $5	80 00
30	heavy cross-bars, at .50	15 00
10	pair cart wheels, at $27	270 00
4	sets light rims, at $4	16 00
Amount carried forward,		$114,587 62

Amount brought forward,		$114,587 62
5	pair buggy shafts, at $1	5 00
525	light spokes, at .08	42 00
1	lot wood screws and tacks	10 00
16	lock sticks, at .75	12 00
1	pair unfinished sleigh runners	5 00
25	pair shafts finished, at $5	125 00
2	steam boxes	10 00
250	wedges for wheel boxes, at .03	7 50
162	hind boards to carts, at $2.50	405 00
3	grindstones	16 00
6	zinc-iron hods, at $1	6 00
6	knee robes	18 00
5	buffalo robes	50 00
2	wool skins	2 50
1	lot curry-combs and brushes	5 00
	Stock and tools in paint shop	200 00
250	lbs. chloride of lime, at .04¼	10 62
650	lbs. copperas	12 00
	Furniture, beds and bedding, of south, west, Boston Highlands and Charlestown stables	100 00
2	iron bedsteads, at $7	14 00
	Stock and tools in blacksmith's shop	800 00
3,334	lbs. of cart and wagon axles, at .08¼	275 05
153	lbs. of wagon springs, at .16	24 48
100	lbs. of patent shoes, at .07	7 00
327	lbs. shoe nails, at .22	71 94
235	lbs. cast steel, at .18	42 30
13,716	lbs. refined iron, at .02½	342 90
5,843	lbs. Norway iron, at .06	350 58
1,451	lbs. corking steel, at .09 45/100	137 12
8,948	lbs. old horseshoes, at .01½	134 22
8,028	lbs. old iron, at .01½	120 42
3,118	lbs. band iron, at .03	93 54
235	lbs. cast-iron sled shoes, at .05	11 75
155	lbs. spring steel, at .09 45/100	14 64
100	lbs. band iron, at .03¾	3 75
75	lbs. band iron, at .04	3 00
12,870	lbs. horse-shoe iron, at $125 per ton	718 19
3,091	lbs. two-inch shaft nails	30 91
4,506	lbs. sharpened shoes (new), at .12	540 72
2,558	lbs. toed and heeled shoes (new) at .10½	268 59
1,969	lbs. smooth shoes (new) at .09	177 21
225	lbs. bar iron (new), at .14	31 50
3	sets brand iron	20 00
Amount carried formard,		$119,863 05

Amount brought forward,	$119,863 05
1 wheel machine	12 00
1 boring machine	5 00
1 tire upsetter	25 00
1 tire bender	10 00
1 lot bolts, rivets, chains and lag screws	103 00
1 lot horse rasps and files	65 00
1 drilling machine	50 00
1 set small scales	20 00
	$120,153 05

HORSE STOCK ACCOUNT.

1875.		
May 1.	On hand,	180
" 3.	Purchased,	2
" 10.	"	2
" 14.	"	2
" 15.	"	2
" 21.	"	2
June 16.	"	1
" 21.	"	1
" 22.	"	1
Aug. 2.	"	1
" 7.	"	1
" 12.	"	2
" 13.	"	1
" 20.	"	1
Sept. 15.	"	2
Oct. 15.	"	1
Nov. 20.	"	1
Dec. 5.	"	1
" 31.	Returned Board of Health,	1
1876.		
Jan. 15.	Purchased,	3
" 22.	"	1
Feb. 9.	"	1
Mar. 20.	"	2
" 24.	"	3
		215

1875.		
May 7.	Transfer Mt. Hope,	3
May 7.	Transfer Board of Health,	1
May 10.	Exchanged,	2
" 20.	Died,	1
June 16.	Exchanged,	1
" 21.	"	1
Aug. 2.	Sold,	1
" 2.	Exchanged,	1
" 13.	"	1
Sept. 28.	Died,	1
Oct. 1.	Killed,	1
" 8.	Died,	1
" 30.	"	1
Dec. 15.	Exchanged,	2
1876.		
Jan. 20.	Died,	1
" 21.	Sold,	1
Feb. 9.	Exchanged,	1
Mar. 17.	Killed,	1
" 20.	Died,	1
" 20.	Exchanged,	3
April 6.	Transfer Mt. Hope,	2
May 1.	On hand,	187
		215

Respectfully submitted,

GEORGE W. FORRISTALL,
Superintendent.